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REPORT

OF



SPECIAL FISHERY COMMISSION

~~Canada~~ Commission and
~~Committee of Fisheries~~

1917

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OTTAWA

J. DE LABROQUERIE TACHÉ
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1918



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SPECIAL FISHERY COMMISSION, 1917.

INTRODUCTORY.

Your Commissioners, appointed under Royal Commission, dated the second day of July, 1917, to investigate and report upon certain matters in connection with the salmon fishing and canning industries in British Columbia, beg to submit the following report upon the matters specifically referred to them, with such introductory comment upon general conditions in the fishing industry in British Columbia waters as the evidence and personal observations have seemed to justify.

1. General Standpoint of Inquiry.

In administering fisheries in tidal waters it would appear that the Dominion is dealing with a clearly established public right, and that the Dominion Parliament has full power to impose such regulations and restrictions as it chooses.

In the judgment of the Privy Council, delivered in 1913, in the appeal of the Attorney General for the Province of British Columbia vs. the Attorney General for the Dominion of Canada, and others, it is laid down that from time immemorial there has existed a public right to fish in tidal waters, which has long been recognized in law; that the right to fish in tidal waters of the Pacific Coast of Canada belongs to every citizen, residents of the Province of British Columbia, even those owning property upon the shores of the tidal waters, having no greater or other right than other citizens; that the exercise of the general right to fish has always, however, been subject to regulation or interference, but since Magna Charta, which abolished the prerogatives of the Crown in this respect, such regulation or interference can be imposed only by the competent legislative authority; that in Canada the Dominion Parliament exclusively has the right of interference with the exercise of the public right to fish in tidal waters, and this right of interference is unlimited, the only recourse lying in the election by the people of a legislature which will change objectionable laws.

If the competent legislature by restrictive laws and regulations interferes with the free exercise of the public right to fish, it is to be assumed that it is only because the general public interest can be better served thereby. From this standpoint, among the proper objects of public policy in respect to the salmon fisheries of British Columbia, we conceive the following to be pre-eminent:

(1) The conservation of the supply of salmon at the economic maximum.

(2) The rendering available to the Canadian consuming public of adequate supplies of this valuable food product at the most moderate prices possible, and the turning to profitable national account, by export, of any surplus over domestic requirements.

(3) The efficient organization of the work of conservation and of administration so that the desired results shall be attained without undue cost; and the imposing upon the general tax-payers of no more than a reasonable share of this cost.

(4) The avoidance of waste, or of unprofitable employment, of labour and of capital in the fishing industry; since the general public interest is concerned with the efficient use of labour and of capital, just as with the conservation of material resources such as the salmon supply.

(5) The general well-being of the individuals necessary to the procuring, preparing and distributing of the fish, which involves their having the opportunity of obtaining reasonable financial returns.

2. The Nature and Habits of Pacific Salmon.

Because of the special characteristics of the salmon in Pacific coast waters, the salmon fishing and canning industries must meet problems of a special character.

Five species of Pacific salmon are caught in British Columbia waters, commonly known as sockeyes, cohoes, spring salmon, pinks and chums. So far as the canning industry is concerned, the sockeye has been and still is the most important variety, although all five varieties are canned, but it is only during the past three or four years that any extensive market for canned pinks or chums has existed for the Canadian canners. The United States canners have for years had a large domestic market for these two varieties. In the fresh and frozen fish trade very little use has been made of the sockeye, but all other species are dealt in, and during the last two or three years there has been a very great expansion in the marketing of fresh and frozen chum salmon.

A good deal of scientific study has been given to the sockeye, but very little indeed to the other species. Even in respect to the sockeye, the information is not sufficiently definite and complete to enable satisfactory judgment on many important practical points to be formed, and the situation is very much worse with respect to the other species. We would most strongly urge the necessity of provision for adequate scientific work, and carefully organized observation, to supply the knowledge without which the problem of administration cannot be wisely dealt with. Among the facts given to us in evidence the following special characteristics of the Pacific salmon may be noted as creating special problems in fishing and canning and also in regulation:—

(1) All five varieties resort to the rivers to spawn. Sockeyes, pinks and chums, which grow to maturity in the open sea, can be caught only during the run to the spawning beds, and spring salmon and cohoes can be taken in large numbers only at that time, although, as they frequent the gulfs and inlets, they may be caught with hook and line at other times. The main run of each species lasts only a few weeks at most. The runs of the different species are not coincident, but overlap. The salmon fishing and canning season thus occupies only a portion of the year, and practically the whole supply must be dealt with in a very few months. In 1916 the canneries operated less than two months on the Fraser river and less than two and a half months in the north. Again, during the period covered by a run the fish travel largely in schools, that is there may be a series of runs of each species, at uncertain intervals, so that the catch and the cannery supply is very irregular.

(2) The weight of evidence, from scientific men and practical observers, is that all species have this in common, that they return, when ready for spawning, to the very stream in which they were hatched. This extraordinary characteristic, if it is sustained by further observation, makes every stream a separate problem.

(3) Sockeyes, pinks, and chums do not feed after leaving the open sea. They can be caught only with nets or traps, and, although trolling for spring salmon and cohoes has been very rapidly developing during the past three years, it is with nets that the main supplies of these varieties also are caught.

(4) Only mature fish take part in the runs, and after spawning, all the parent fish die, none returning to the sea again. Pinks mature when two years old, cohoes ordinarily when three years old, chums when three or four years old, the great majority of sockeyes when four years old, and spring salmon may take five, six or even seven years to mature.

As each fish performs the function of parent but once, and then dies, the continuance of the supply depends absolutely upon the new generation hatched in each year. Anything that affects the hatching results in any one year will inevitably be felt in two, three, four or five years, according to the species of salmon concerned. Every year is therefore a separate problem.

(5) The females of each species produce about the same number of eggs—2500 to 3000. A certain number of fish can fully seed the spawning beds of any particular river. An authoritative opinion was expressed to us that there have been times, probably not in recent years, when too many fish reached certain spawning beds, one school depositing on top of the spawn of a previous school, and causing the destruction of many eggs.

It would appear to be justifiable, therefore, to catch and use all fish beyond the number thus required. On the other hand, it would appear to be a clear duty to allow enough fish to escape the nets every year to fully seed the spawning beds and maintain the maximum supply; and not only must fishing be regulated but the streams must be kept free from obstructions, for if the fish cannot reach suitable spawning beds, the deposit of eggs may be lost and the supply for that cycle of years cut off.

If fishing close to the necessary margin is allowed, then care of the spawning beds becomes very important, and the presence of natural enemies of the eggs and the fry, such as trout, ducks, eagles, etc., becomes a matter of practical concern.

Hatcheries, under proper methods, will produce a greater proportion of fry from the same number of eggs than will natural spawning beds, which are subject to innumerable accidents and depredations. Hatcheries, under scientific management, are important, therefore, because they will tend to increase the number of fish that may safely be caught without endangering the permanent supply.

Again, although all varieties are equally prolific in eggs, yet the different species mature at different ages. The pinks, which reproduce in their second year, are thus the most prolific. If the supply has become depleted, it would take only two years of adequate measures to restore it in the case of pinks, but five, six or seven years in the case of spring salmon. On the other hand, two years of unlimited fishing, of obstructed channels, might completely destroy the supply of pinks in any stream, but it would take longer with other species.

(6) Sockeye spawn only in rivers with lake expansions, and they pass through the lakes and spawn in streams on the other side. They generally frequent the larger rivers, and go up almost as far as there is water. Spring salmon also generally go to the head waters of rivers, but they do not necessarily frequent long rivers, or those with lake expansions. Cohoes, pinks and chums, on the other hand, do not ordinarily, except perhaps in the first runs, go far from the sea, and may spawn almost in brackish water, and they may resort to small streams as well as to the larger rivers. All species may run in some rivers, all but sockeye in others, while some smaller streams may have only pinks or chums, or both. In this respect also every stream is a different problem.

(7) That sockeyes, pinks and chums, do not need to feed after leaving the open sea, and spring salmon and cohoes after entering fresh water, is due to the fact that supplies of nourishment have been stored up in their bodies, sufficient not only to furnish the energy to carry them, particularly in the case of the sockeyes, through weeks of strenuous exertion in battling up against currents for perhaps hundreds of miles, but also to develop to maturity the milt and the roe. The using up of the reserves of nourishment gradually causes physical deterioration, and when actual spawning time is near, almost startling changes in the appearance of the fish take place. As the development proceeds, the fish become less and less valuable as human food, and more and more valuable as prospective producers of a new generation of salmon.

These physiological facts create many problems. Salmon should not be killed too near spawning time, because, even if not really unfit for human food they have reached the stage where, as one witness expressed it, they are "more valuable as parents than as a cannery product." But the different habits of the different species introduce complications. Because the sockeyes travel so far up the rivers, they start with ample reserves of nourishment, and if fishing is confined to tidal waters, they are generally found to be in prime condition. The same is true of the spring salmon that are making for the headwaters of long rivers, but the majority of the cohoes, pinks and chums, that spawn close to the sea, may not try to enter fresh water until they are in a very advanced condition. The pinks and chums may have come in from the open sea weeks before that time, and may play around the mouths of the rivers and streams, becoming, however, more and more sluggish. Many of the smaller streams frequented by these species run almost dry in certain summer seasons, and the fish must then perforce wait for the autumn rains. As gill-net and drag-seine fishing is carried on within, or close to, the mouths of the rivers and streams, it is possible to catch altogether too great a proportion of these fish, and to catch them when it would be better they should not be used for human food. Each gill-net and drag-seine area, therefore, must be treated as a different problem, according to the fish running through it, and according to the season.

(8) The life history of sockeyes, pinks and chums, from the time when as fry, or fingerlings, they leave the rivers for the open sea until they return as mature fish, is almost unknown. What they feed on, what enemies they have, what conditions affect the rate of destruction at sea, have not yet been discovered. This is the big, uncertain element in the whole problem. This gap in knowledge should be filled in, and much more complete information about the spring salmon and cohoes should be obtained.

3. The Supply of Salmon.

Is the supply of salmon in British Columbia waters being maintained, or is it increasing or decreasing? No absolute tests can be applied. Among the opinions of practical observers the more optimistic are that the supply is, on the whole, being maintained; but the majority hold that the supply is tending to decrease. No opinion was expressed to the Commission that the supply is increasing. The only evidence of a positive character consists of the reports of the officials who more or less regularly visit certain spawning beds and of the records of the fish caught from year to year. It might be possible to devise a series of tests at the spawning beds, covering not only the number of fish spawning but the number of fry starting for the ocean, that would give fairly reliable data, but at present there are no standardized tests and reports of the officials represent only the judgment of the individuals concerned upon such general observations as they can make. Such reports as there are deal chiefly with sockeye salmon and do not cover all districts.

The number of salmon caught in any year is not conclusive evidence as to the magnitude of the supply. Weather conditions and the degree of discoloration in the water, for example, will affect the catch. Over a series of years, however, the pack at the canneries must bear some direct relationship to the supply, since fishing is very industriously conducted every year and by about the same number of fishermen, and competition has, if anything, been growing keener. Prior to 1902 the records of the British Columbia pack do not show the quantities of each variety canned, but only the total product. From 1902 to 1917 the numbers of cases of salmon canned in British Columbia, each case containing 48 pounds are as follows:—

Year.	Sockeye.	Red and White Springs.	Cohoes.	Pinks.	Chums.	Totals.
1902.....	534,161	19,042	47,234	26,097*	628	627,162
1903.....	368,717	25,657	51,918	27,382*	.....	473,674
1904.....	323,226	35,421	71,151	36,096*	.....	465,894
1905.....	1,080,673	28,359	44,458	13,970*	.....	1,167,460
1906.....	459,679	32,344	69,132	68,305*	.....	629,460
1907.....	314,074	26,198	87,900	118,704*	.....	546,876
1908.....	355,023	28,164	81,917	76,448*	.....	541,552
1909.....	840,441	19,017	61,918	46,544*	.....	967,920
1910.....	565,915	28,789	74,382	34,613	58,362	762,061
1911.....	383,509	48,456	119,802	305,247	91,951	948,965
1912.....	444,762	80,437	165,309	247,743	58,325	996,576
1913.....	972,178	41,049	69,822	192,887	77,965	1,353,901
1914.....	536,696	49,328	120,201	220,340	184,474	1,111,039
1915.....	476,042	58,104	146,956	367,952	82,000	1,131,054
1916.....	214,789	66,726	183,623	280,644	240,201	985,983
1917.....	339,848	76,276	157,589	496,759	475,273	1,545,745

*Pinks and chums combined.

In this table and in the tables following, account is not taken of the steelhead, which is a trout, or the blueback which is probably a young coho, but, comparatively, the pack of steelheads and bluebacks is insignificant for the purposes of this report and its conclusions.

The above figures show that the total pack of British Columbia has been tending to increase, but that the increase had been due chiefly to the larger packs of pinks and chums. Sockeye salmon have always been the chief object of the fishing and have commanded the best price. Spring salmon and cohoes have also been in demand at all times, but it is only since 1911 that the canners have been prepared to take pinks and chums in any quantity and the prices paid for these varieties have not until the last two or three years proved an incentive to the fishermen. Fishing under the new conditions must be continued for a few years longer before the packs of pinks and chums can be regarded as providing evidence as to the comparative magnitude of the supply of these species of salmon. It cannot be without significance, however, that despite the extension of fishing operations indicated by the figures for the total pack, the catch of sockeye salmon has not increased. By four year periods the average sockeye pack remained about the same in quantity, but from 1902 to 1910, inclusive, sockeye constituted 78 per cent of the total pack, while from 1911 to 1917, inclusive, less than 42 per cent. The sockeye figures for 1916 and 1917 are distinctly disquieting, and indeed the small catch on the Fraser River in 1917, if it means the end of the cycle of "big runs" on that river, is of the gravest consequence.

BRITISH COLUMBIA FISHERY COMMISSION

In District No. 2, that portion of the British Columbia coast north of Cape Caution, which was more particularly investigated by your Commissioners, the returns of the pack from 1905 to 1917 are as follows in cases:—

Year.	Sockeye.	Red and White Springs.	Cohoes.	Pinks.	Chums.	Total.
1905.....	228,232	19,864	12,342	9,411*	.....	269,849
1906.....	263,522	22,277	31,275	45,101*	.....	362,175
1907.....	239,823	14,460	39,397	35,638*	.....	329,318
1908.....	268,605	20,200	42,926	61,470*	.....	393,201
1909.....	244,271	17,611	33,538	36,277*	.....	331,697
1910.....	403,499	13,004	30,653	21,720*	.....	468,876
1911.....	306,605	25,661	54,063	120,108	29,815	536,252
1912.....	301,063	39,814	98,202	204,376	19,913	663,368
1913.....	183,731	24,458	41,169	144,947	23,148	417,453
1914.....	310,991	18,919	59,447	171,611	38,680	599,648
1915.....	325,662	22,774	81,852	218,940	28,922	678,150
1916.....	173,420	32,795	123,804	244,831	162,099	736,949
1917.....	182,045	27,614	99,961	313,169	174,911	797,700

*Pinks and chums combined.

For the three principal fishing areas in this district the corresponding returns are:—

Skeena River District.

SKEENA RIVER DISTRICT.

Year.	Sockeyes.	Red and White Springs.	Cohoes.	Pinks.	Chums.	Total.
1905.....	84,717	14,598	7,247	7,523	.....	114,085
1906.....	86,384	20,138	16,897	88,991	.....	212,410
1907.....	108,413	10,378	15,247	25,217	.....	159,255
1908.....	139,846	13,842	10,085	45,404	.....	209,177
1909.....	87,901	12,469	12,249	28,120	.....	140,739
1910.....	187,246	9,785	11,531	13,473	.....	222,035
1911.....	131,066	17,942	23,376	81,956	70	254,410
1912.....	92,498	23,833	39,835	97,588	504	254,258
1913.....	52,927	26,436	18,647	66,045	.....	164,054
1914.....	130,166	11,740	16,378	71,021	8,329	237,634
1915.....	116,553	15,273	32,190	107,578	5,769	277,363
1916.....	60,923	20,933	47,409	73,029	17,121	219,415
1917.....	65,760	16,285	38,456	148,319	21,516	290,336

RIVERS INLET DISTRICT.

Year.	Sockeyes.	Red and White Springs.	Cohoes.	Pinks.	Chums.	Total.
1905.....	82,771	351	.....	.....	.....	83,122
1906.....	122,631	181	66	.....	.....	122,878
1907.....	87,874	450	5,040	700	.....	94,064
1908.....	64,652	454	9,505	479	.....	75,090
1909.....	89,027	587	1,400	.....	.....	91,014
1910.....	126,921	383	2,075	19	.....	129,398
1911.....	88,763	317	6,287	5,411	288	101,066
1912.....	112,884	1,149	11,010	8,809	3,845	137,697
1913.....	61,745	594	3,660	2,097	.....	68,096
1914.....	89,890	566	7,789	5,784	5,023	109,052
1915.....	130,350	1,022	7,115	2,964	5,387	146,833
1916.....	44,936	1,422	15,314	3,567	20,144	85,383
1917.....	61,195	817	9,124	8,065	16,101	95,302

NAAS RIVER DISTRICT.

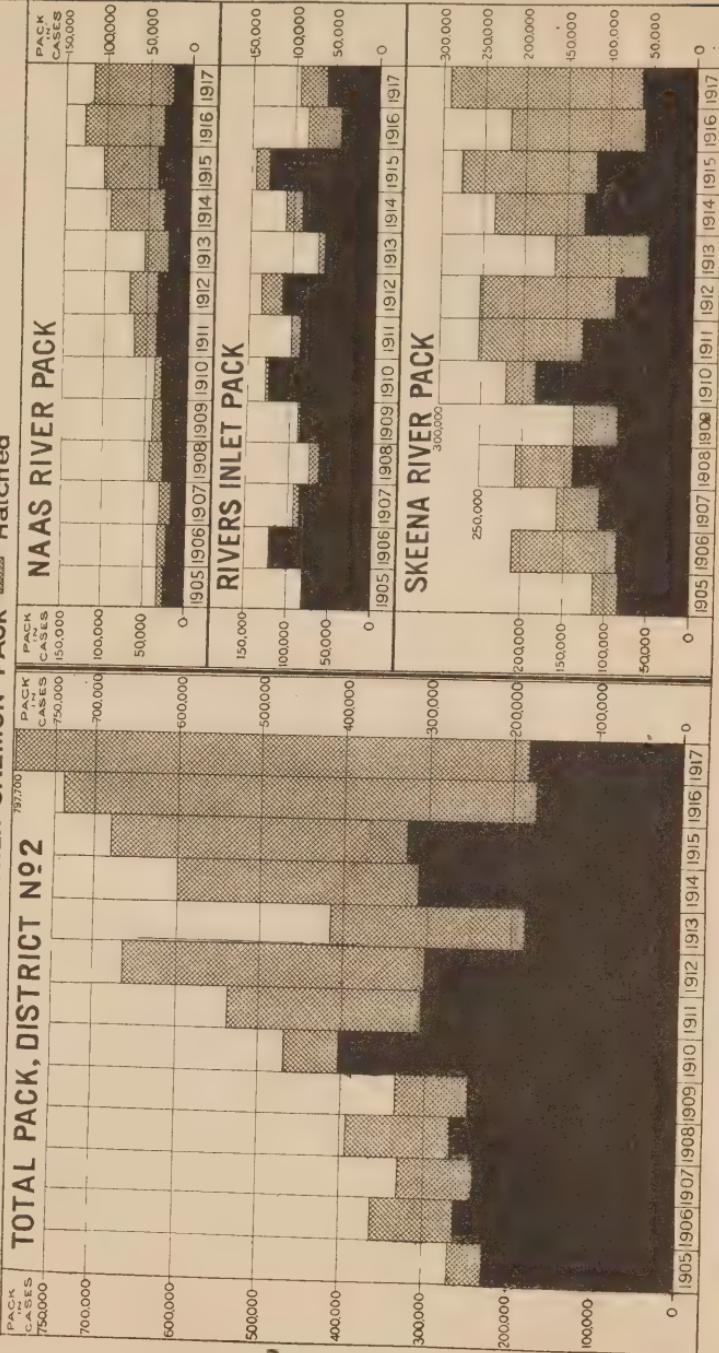
Year.	Sockeyes.	Red and White Springs.	Cohoes.	Pinks.	Chums.	Total.
1905.....	24,462	3,340	3,083	1,840	.....	32,725
1906.....	22,166	921	5,997	3,460	.....	32,534
1907.....	17,813	1,288	6,093	5,957	.....	31,151
1908.....	27,584	3,263	8,348	6,612	.....	45,807
1909.....	28,246	2,337	6,818	.....	3,589	40,990
1910.....	30,810	1,239	6,285	895	351	39,440
1911.....	37,327	3,759	7,942	11,467	5,189	65,684
1912.....	36,037	6,936	12,408	12,476	3,245	71,162
1913.....	23,574	3,151	3,172	20,539	2,987	53,423
1914.....	31,327	3,385	9,276	25,333	25,589	94,890
1915.....	39,349	3,701	15,171	34,879	11,076	104,176
1916.....	31,411	3,845	19,139	59,593	11,200	125,186
1917.....	22,188	4,496	22,180	44,568	24,938	118,371

The above figures are represented in Diagram No. 1, which distinguishes, by solid black, the proportion of each year's total pack consisting of sockeye salmon. In fig. 1 are the returns for the district as a whole and in fig. 2 the returns for each of the three principal areas mentioned. The pack of other varieties than sockeye has shown the marked tendency to increase, which has already been discussed. The figures of the pack of sockeye in this district, however, give no ground for confidence that the average supply is even being maintained. Intensive fishing for sockeye has prevailed during the whole period and new canneries have been established since 1912, which has added to the pressure upon the fishermen for results, but nevertheless the general trend of the sockeye curve rather appears to be downward. One witness submitted to the Commission an interesting analysis and comparison of the figures by four year periods, with quotations from the reports on the spawning beds, in support of the opinion that no decrease in the supply of sockeye in District No. 2 could be established. The facts of the pack are, however, as they appear in the diagram and they lend little encouragement to optimistic views.

There is general agreement that spring salmon are decreasing in District No. 2. The figures of the pack of this species are not satisfactory evidence as to relative supply, because prior to 1914 a considerable proportion of the catch was "mild cured"

1905-1917
BRITISH-COLUMBIA: DISTRICT NO 2: SALMON PACK.

— Solid Black
Hatched ■
PACK ■
SALMON ■
PACK ■
ALL OTHER SALMON



and not canned, and found its principal market in central Europe; while since the war began nearly all the spring salmon caught, which were not taken for the fresh fish trade, have been canned. The fresh and frozen fish trade has always taken a varying proportion of the catch of this species and its demands are undoubtedly increasing. Another important fact to be borne in mind in connection with the catch of spring salmon and of cohoes, is the increased amount of fishing for these two species, due to the great development of trolling, in waters outside the gill-net areas, and due also to the extension of the active fishing season owing to the demand for pinks and chums, which run in the autumn, with the result that almost the full allowed number of nets are now continuously in the water for the whole season. The larger packs of cohoes since 1911 correspond with this period of increased fishing and there is ground for anxiety lest the supply of this species is now being too greatly drawn upon.

The money value of the salmon pack of British Columbia, calculated at the opening prices each year, averaged during the period 1911-1916 over \$7,125,000 per year, and in 1917 with higher prices and a larger pack, was over \$12,000,000. To arrive at the market value of the total British Columbia salmon catch there must be added to the cannery returns the prices realized for the salmon sold fresh and frozen, for those exported to the United States to be canned, and for those smoked and salted; and the magnitude of the trade in salmon, other than canned salmon, is indicated by the figures given for 1916 which show 15,898,000 pounds sold fresh or frozen, 16,051,600 pounds exported to the United States to be canned, 1,478,300 pounds mild cured, 1,391,300 pounds salted and 89,300 pounds smoked, or a total 34,908,500 pounds of a market value of \$2,880,515.

Whatever may be the conclusion as to the present tendency of the supply, it would appear to be beyond question that the existing quantity of salmon is small in comparison with the production of which the rivers and streams in British Columbia are easily capable. With adequate protective measures, with a few more fish hatcheries and with channels kept free from obstructions, the supply should materially increase. It is by what is obviously possible that the present supply should be measured. The potential national value of the Pacific salmon fisheries would seem never yet to have caught the practical imagination of the Canadian people or of Canadian administrations. These rivers and streams, for the most part unsuitable for navigation, are the natural spawning beds of five species of salmon which require of man nothing but the chance to multiply, which go out to feed in the ocean and when mature return on their fixed dates with a rush to the nets.

4. The Canning Industry.

On the British Columbia Coast cannery plants have been confined, almost exclusively, to the canning of salmon. A small beginning is now being made in the canning of herring, but no market at present exists for canned fish of the other kinds found in British Columbia waters. Although in the United States some experiments are being made in the use of salmon cannery plants for the canning of fruits and vegetables, thus prolonging the working season, this has not so far been practicable in British Columbia, and in the northern districts fruits and vegetables are not available in sufficient quantities to make a basis for a canning industry. The British Columbia cannery industry is, therefore, subject to all the special and peculiar conditions of salmon fishery.

One of these special conditions is the variation in the volume of the runs of salmon from year to year. On the Fraser River, for example, and owing perhaps to some obstructions in early times which blocked access to certain spawning beds for three years in succession, there has been, up to 1917, one year with a big run of sockeyes, followed by three years with comparatively small runs. The cycles show less variation in the north, but the cannery industry as a whole has had the problem

of meeting the big year, and yet of carrying on through the smaller years. The following table gives the number of canneries operating in British Columbia in each year, from 1876 to 1916:—

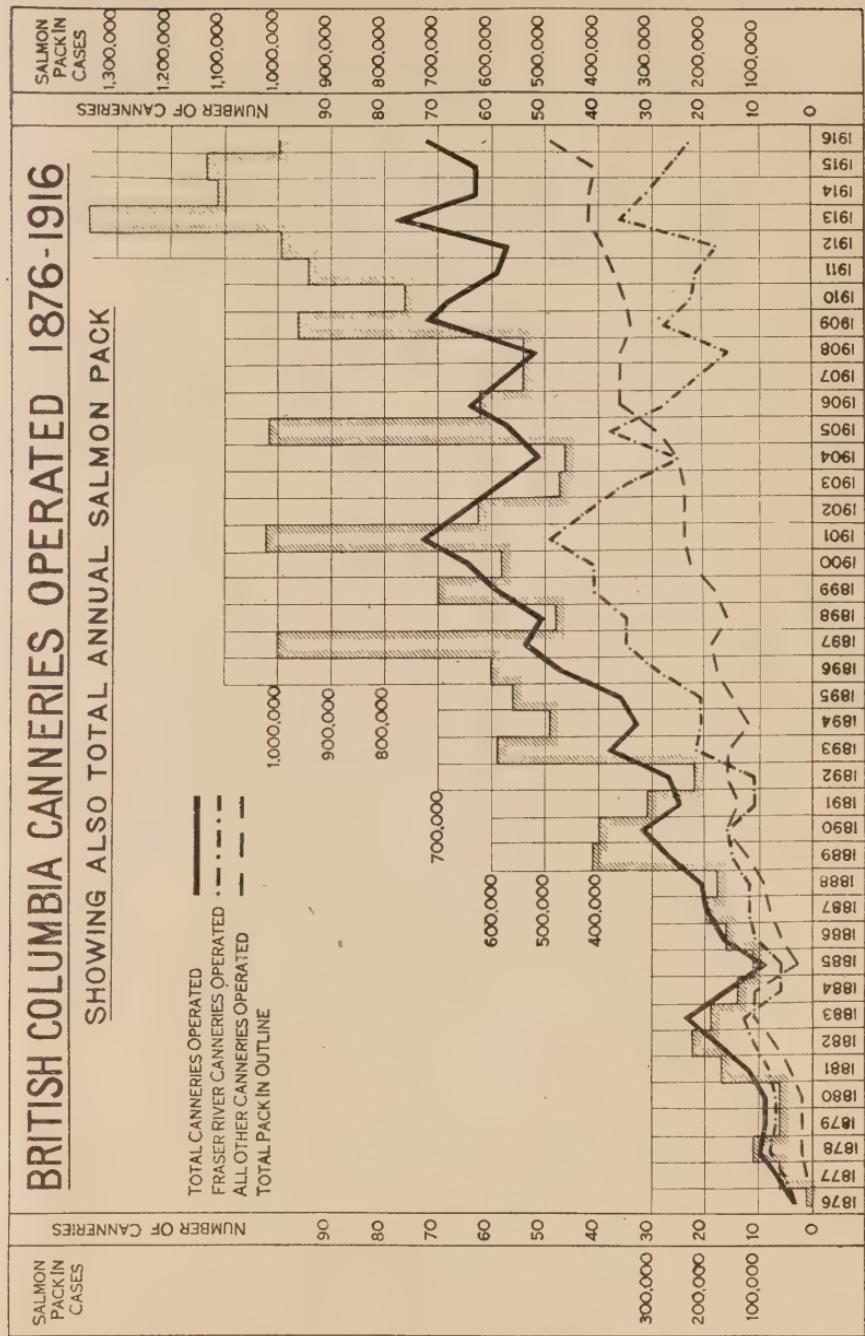
Year.	No. of Canners.	Year.	No. of Canners.	Year.	No. of Canners.	Year.	No. of Canners.
1876.....	3	1887.....	20	1898.....	51	1909.....	72
1877.....	6	1888.....	21	1899.....	59	1910.....	68
1878.....	10	1889.....	27	1900.....	64	1911.....	59
1879.....	9	1890.....	32	1901.....	73	1912.....	57
1880.....	9	1891.....	25	1902.....	66	1913.....	78
1881.....	12	1892.....	27	1903.....	59	1914.....	63
1882.....	18	1893.....	38	1904.....	51	1915.....	63
1883.....	24	1894.....	33	1905.....	57	1916.....	72
1884.....	17	1895.....	36	1906.....	64		
1885.....	9	1896.....	47	1907.....	58		
1886.....	17	1897.....	54	1908.....	52		

In Diagram 2, these numbers are presented graphically. The industry reached substantially its present proportions in 1901, but except in 1905, 1909 and 1913 nothing like the full number of plants in existence has been in operation in any year since that time, the sharp declines in the line in intervening years representing fixed capital lying entirely idle. The diagram indicates the general condition the present investment in canneries has had to meet and the inherent difficulty of providing for years of widely varying supply. Until adequate measures are taken to stabilize the supply at the economic maximum, this special problem will exist. This diagram also shows separately the plants operating each year in the Fraser River district and those operating in the rest of the Province, and it is evident that conditions on the Fraser River are the chief cause of the variations in the total figures. The plants outside the Fraser River district have been the more steadily operated year by year and have rapidly grown in numbers. The limitation of cannery licenses in District No. 2 from 1908 to 1912 would partly account for the check upon this increase between 1906 and 1912. There is also indicated on the diagram, in the shaded columns, the quantities of the total salmon pack in British Columbia in each year, which form an interesting study in relation to the numbers of canneries operating. The output per cannery has, on the average, been greater since 1911 than in previous years. There have been improvements in machinery and in processes, but the main reason for the increased output has been the market opening that has arisen for canned pinks and chums.

Another special condition is the irregularity with which the salmon run within each season. There may be a single rush of immense numbers, followed at uncertain intervals by smaller schools, and with very moderate catches in between. To put up the pack provided for, a cannery must be equipped to handle an extreme twenty-four hour peak load, which, however, in any particular year may not materialize, and the plant will not be fully in use except at the peak load.

A third condition is the shortness of the season. In 1916 the canneries on the Fraser River began operating on July 1st and were closed on August 25th, and in the northern districts the season extended from June 20th to September 1st. Not counting Sundays, the Fraser canneries operated 48 days and the northern canneries 62 days. The fixed investment must be carried for 365 days. The growing market for canned pinks and chums will tend to extend the season somewhat, but it will be short at best.

To form an estimate of the working efficiency of existing plants under present conditions, as compared with maximum theoretical efficiency, we secured from the secretary of the Canners Association a statement of the number of canning machinery units in each cannery in the Province in 1916 with the normal rated capacity of each



and a comparison of this theoretical output with the actual pack. The canning machinery on the Fraser River, working twelve hours a day at rated capacity for $1\frac{1}{2}$ days, could have packed all the salmon put up on the Fraser River in the 48 days of the season; and working only eight hours a day, the work could have been done in $2\frac{1}{2}$ days. But as it was an "off" year on the Fraser River 14 canneries did not open at all. The machinery in those actually operating could have put up the pack in about $2\frac{1}{2}$ days of 12 hours, or in less than $3\frac{1}{2}$ days of 8 hours.

In the north conditions were better, because, although the catch of sockeye was small, larger quantities than usual of other salmon were canned and the total pack was relatively large. But taking the three principal centres in District No. 2, the Skeena River, Rivers Inlet and Naas River, the pack could have been put up by the canneries operating in less than 9 days of 12 hours each, or in about 13 days of 8 hours each, whereas the canneries were kept in operation for 62 days.

Such a wide discrepancy between theoretical capacity and actual output cannot entirely be explained on the ground of the exceptional conditions under which the industry must be carried on, as outlined above, but indicates an overequipment of the industry even in District No. 2, with which our inquiry is specially concerned.

Even if there were not more canneries and more machinery than was required to deal with the fluctuations in the supply and the shortness of the season, it is clear that fixed charges must be relatively very heavy in this industry. Thirty-three canneries in District No. 2 in 1916 showed a fixed investment in canneries and equipment alone of \$3,492,423.73, and the sales or value of pack for the year amounted only to \$4,193,306.45. If other investments and the borrowings from the banks of working capital were taken into account, the turn-over would appear less than the capital employed. In 1916 there was a large pack and good prices and the profit was above the average, but in 1913 there was an unexpectedly poor catch in that District, and lower prices, and the fixed investment in canneries and equipment of 28 canneries reporting was \$2,979,514.56, while the sales or value of pack amounted only to \$1,770,318.32, or with other investments and borrowed working capital a turn-over of less than half the capital employed. That year showed a substantial loss.

Another important fact which affects costs and makes them vary greatly from year to year, is that large investments and commitments must be made in preparation for the pack before the fishing season opens. Provision is made according to the expectation of what the catch will likely be, based on what is known of conditions two, three, four or five years before, according to the species of salmon calculated on. Tin plate must be purchased and manufactured into cans, which will not often keep over for another season because of danger from rust; new nets and boats must be bought or financed and old ones repaired, according to the number of fishermen to be engaged, and not according to the catch: a managing and operating staff must be hired for the season, including engineers, etc., but not including the fishermen or the men and women who pack the cans and who are generally engaged on piece work. One canner took for us from the books of a cannery in the north the totals of what may be called fixed manufacturing costs which are and must be incurred irrespective of the size of the pack. In this statement he did not include the cost of the tins, the cost of the fish or of putting the fish in the cans, but such other items as those above mentioned and including power and light and sundry incidentals. In one year when the pack at the cannery fell far below reasonable expectations and amounted only to 5,897 cases these fixed manufacturing costs amounted to \$4.05 per case, whereas if the pack had been 18,304 cases, which it was four years before, and which had been hoped for, these costs would have been only \$1.31 per case.

The most general of all the determining conditions is that which arises from the necessity of conserving the supply of salmon. If enough fish are to be allowed to pass up the rivers to seed the spawning beds, then only a certain number of fish can be allowed to be caught. Restriction is now imposed in various ways and public policy must insist on fixing some maximum limit to the catch. If equipment becomes too great, either because new canneries are built or because the plants in existing canneries are enlarged, it is not within the power of the canners by any enterprise or industry

to correspondingly increase the supply of material. One canner may take business from another canner, but the industry as a whole must face diminished efficiency with its rapid rise in costs.

Having noted certain factors entering into costs, it is important to understand the general conditions affecting price to the Canadian canners. Pacific salmon are canned in the United States, in Siberia and in Japan as well as in British Columbia, and all these countries are competitors in the world's markets. Of the total pack of all countries in the period 1910-1916 the United States packed 81.8 per cent, or 33,791,470 cases; British Columbia 15.3 per cent, or 7,299,757 cases; Siberia 2.3 per cent, or 1,097,209 cases; and Japan in the three years 1914-1916, packed 299,250 cases, or 1 per cent of the total pack for these three years, and 0.4 per cent of the pack for the whole period. These percentages are illustrated in Diagram 3, fig. 1. The United States is thus the supreme leader in production.

The United States has a protected domestic market for 72.5 per cent of its enormous pack and exports only 27.5 per cent. British Columbia, on the other hand, places 72.8 per cent of its pack on the export market, the domestic demands absorbing only 27.2 per cent. Further, the 27.5 per cent of its pack the United States exports represents about twice as many cases of salmon as the 72.8 per cent exported by British Columbia. Indeed the exports of the United States are about one and one-half times as great as the total pack of British Columbia. These calculations are based on the statistics of the period 1910-1916 and are illustrated in Diagram 3, fig. 2. Under these conditions the position of the United States canners must make them the dominating factor on the producer side in the making of export prices, and the export prices must tend to set at least the minimum for domestic prices in Canada.

The purchaser side of the export market is represented, for the most part, by agents or brokers, resident on the Pacific coast, acting more or less directly for foreign distributing houses. Great Britain has been the market for by far the greater part of the exportable surplus of Canada and of the United States. These buying agencies, some of which may do an independent jobbing business, deal for the United States surplus as well as for that of Canada, and thus a general market with common price quotations tends to result. Only one or two of the Canadian canners have established extensive direct dealings with the trade in Great Britain. Contracts may be entered into many months in advance, a portion at least of the expected pack often being sold in December or January for delivery in the following August, or later. These advance sales assist canners in financing the preliminary investment in equipment and labour before the pack is ready for sale, and the price obtained is the result of negotiations in which the judgment of the canners is set against that of the buyers as to what the conditions of supply and of cost will ultimately prove to be. In August, with a considerable proportion of the pack ready for delivery, competition between buyers and sellers generally results in a uniform price and, as Seattle and San Francisco are the largest markets, this price is published at those points as the basic "opening price." The greater part of the pack of both countries moves at this opening price. The canners may, however, withhold a portion of their pack from contract at that time, according to their judgment as to the future course of prices.

The Canadian pack and the position taken by the Canadian canners must of course prove an important influence on prices, but it is clear, from the conditions revealed in Diagram 3, that the Canadian canners do not control the market. If any one district in Canada is to be considered by itself, as District No. 2 under the instructions to this Commission, it is absolutely certain that price control does not rest with it. In 1913 the pack in District No. 2 was unexpectedly small, being 245,915 cases less than the year before, and costs per case were therefore higher. But the pack, under these conditions, could not be sold on the basis of this higher cost, the ruling price obtained being \$1.80 per case lower than in the previous year, a decline of over 23 per cent. The result was an actual loss in the district of over \$354,000, without making allowances for depreciation accounts. The year previous

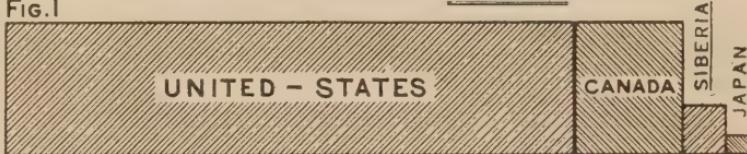
WORLD'S SALMON PACK

1910-1916

PACK IN CASES

UNITED STATES.....	38,791,470
CANADA.....	7,299,757
SIBERIA.....	1,097,209
JAPAN.....	229,250
TOTAL	<u>47,417,686</u>

FIG.1

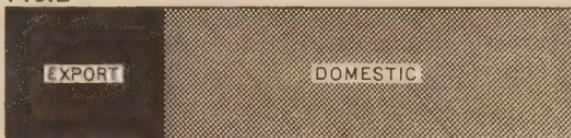


EXPORT AND DOMESTIC DISTRIBUTION OF UNITED - STATES AND CANADIAN PACKS

UNITED STATES

EXPORT MARKET... 27.5 PER CENT .. 10,667,652 CASES
 DOMESTIC MARKET 72.5 PER CENT .. 28,123,811 CASES

FIG.2



CANADA

EXPORT MARKET... 72.8 PER CENT .. 5,314,224 CASES
 DOMESTIC MARKET 27.2 PER CENT .. 1,985,533 CASES



the profit for the district had been over \$879,000 before providing for depreciation, almost a record figure, so that the fluctuation in the profit and loss statement within one year was no less than \$1,233,000. "Opening prices" of canned sockeye per case of 48 one-pound tins for the years 1897-1917, and of canned cohoes, pinks and chums for the years 1906-1917, have been as follows:—

Year.	Sockeye.	Cohoes.	Pinks.	Chums.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1897.	3 20			
1898.	3 20			
1899.	4 40			
1900.	4 40			
1901.	3 80			
1902.	4 00			
1903.	6 00			
1904.	6 20			
1905.	5 40			
1906.	5 80	3 40	3 00	2 80
1907.	6 60	4 00	3 20	3 00
1908.	6 40	4 00	2 80	2 80
1909.	5 40	4 20	2 40	2 30
1910.	6 60	5 00	3 20	3 10
1911.	7 80	5 80	4 00	3 80
1912.	7 80	4 60	2 60	2 50
1913.	6 00	3 40	2 60	2 20
1914.	7 80	4 60	3 60	3 40
1915.	7 80	4 60	3 00	2 80
1916.	8 10	5 20	3 60	3 40
1917.	11 60		6 60	6 40

These prices are represented in diagram 4. The line of sockeye prices is made most prominent because since 1902 the sockeye has been the leading species on the market, north of the Columbia River and because it has been the principal species canned in British Columbia. There is indicated in this diagram also, in the heavy broken line, the index numbers of general wholesale prices in Canada as worked out by the Department of Labour on the basis of 271 commodities, as nearly as possible drawn to the same scale as the sockeye prices. Comparing this line of general prices with that of the sockeye prices it is apparent:

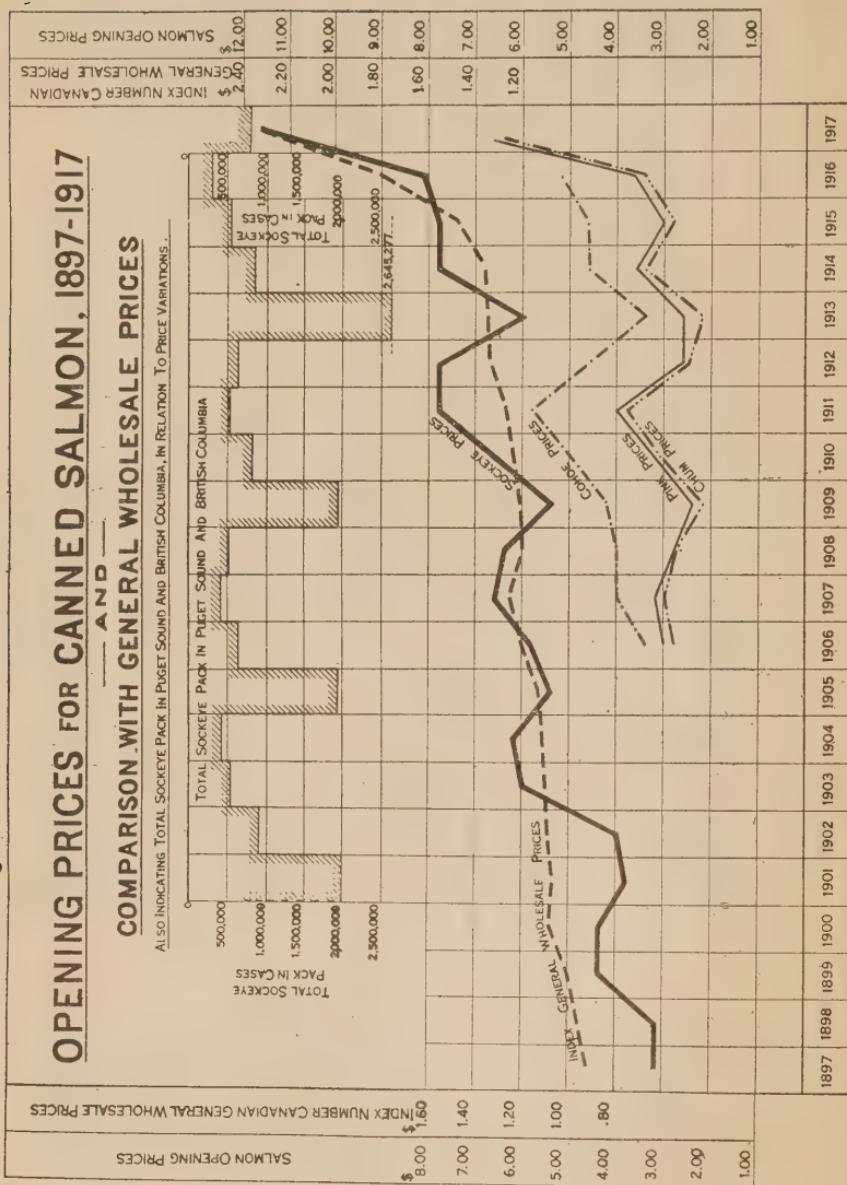
1. That in 1903 sockeye prices established themselves on a new level as compared with other commodities. Prior to 1903 Columbia River "chinook" (spring salmon) and Alaska "red" (a variety of sockeye) generally commanded a higher price than British Columbia and Puget Sound sockeye, but in that year the sockeye proved that it had won its way into the position of peer, at least, of any variety of canned salmon in the estimation of the market.
2. That canned sockeye has been able ever since 1903, on the average, to maintain the new level.
3. That although sockeye prices have increased, they have not on the whole increased faster than general prices.
4. That sockeye prices have fluctuated much more violently than general average prices.

Inverted at the top of the diagram, is a figure with shaded outlines giving the total yearly pack of sockeye in British Columbia and Puget Sound. If the changes in quantities marketed, as illustrated in this figure, be compared with the fluctuations in sockeye prices, it will be seen how very sensitive price is to quantity in the canned sockeye market. The sharp declines in price every fourth year correspond with the big runs of sockeye to the Fraser River which were a regular feature previous to 1917, and in the intervening years there is also, on the whole, a clear tendency for price to adjust itself to varying quantity. This fact, taken in connection with the fact pointed out above, that the general trend of sockeye prices has closely adhered to that of general average prices of all commodities in common use, indicates a normal action of supply and demand in this market. If prices are not readily subject to artificial manipulation by the canners, but rather are determined by the course of general

OPENING PRICES FOR CANNED SALMON, 1897-1917

AND COMPARISON WITH GENERAL WHOLESALE PRICES

ALSO INDICATING TOTAL SOCKEYE PACK IN PUGET SOUND AND BRITISH COLUMBIA, IN RELATION TO PRICE VARIATIONS.



prices, modified naturally by relative quantities produced, this must be considered among the important general conditions of the cannery industry.

As shown by the lines in the diagram, prices of the other varieties of salmon are obviously influenced to a considerable extent by prices of sockeye, which is the market leader, but detailed examination reveals very interesting divergences, which however cannot here be fully traced to their causes.

Now, on the average, the prices realized for canned salmon, at least in the north where for some years there was a limitation on the number of canneries, have provided a substantial margin over manufacturing costs. From the fact that in this business there is only one turn-over in a year, and the investment is productive for so small a proportion of the year, and in view of the many contingencies that so widely affect costs, it is clear that the margin on the turn-over must be greater than in most other industries for the business to have survived at all. In district No. 2, for the six years 1911-1916, 17.7 per cent of the money realized from the pack was profit (again subject to certain charges for depreciation). Leaving out of the calculation the year 1913, in which a conjunction of conditions that may not often recur created a loss, the average profit in the other five years was 20.9 per cent of the money value of the pack. This is, of course, above the usual margin on an industrial output which is produced in quantity and depends on a wide general market. This means that under perfect condition this industry should prove highly profitable. The history of British Columbia canneries establishes that to a majority who entered upon the business it has been the reverse of profitable. We have not been able in the time given to this investigation to reach any satisfactory conclusions as to the profits taken out of the business by those who have been successful, but the possibilities under ideal conditions are good. But conditions are very far from being satisfactory. The industry is over-equipped and the supply of raw material is too irregular and uncertain.

It is, in our judgment, a clear public duty, not merely to conserve the supply of salmon at its present proportions, but to increase it until each year reaches the economic maximum; and it appears to us equally clear that all the conditions surrounding the industry should as far as possible be stabilized, and the inefficient use of capital and of labour obviated or prevented. This would leave to be faced the problem of possible excessive profits to individuals. But the solution of this problem would not seem to be found in encouraging or permitting the employment of more capital or more labour than can efficiently perform the work. This would not result in dividing up the profit among more individuals, but in destroying all profit; for there is nothing more clearly demonstrable than that, with a limitation on the yearly catch, the unnecessary increase of equipment dealing with that catch must, under the special conditions of this industry, increase costs so fast that only loss can ensue. The public interest can be better served in other ways. The privilege enjoyed by those who fish in tidal waters is not only fundamentally a public right, but the public stands related to the industry as taxpayers and as consumers. If costs become too great all hope of advantage to the public as consumers will disappear. As federal taxpayers, the public now contribute something like \$135,000 a year over and above what is collected from the fishing industry by license fees, and larger sums must be expended in the future. In return for the establishment of conditions that are stable and economically sound, the industry should in our opinion contribute to the public treasury through graduated license fees or taxes that proportion of its profits which is in excess of a reasonable return for capital and enterprise. We have not attempted to work out the details of the system by which this end should be accomplished and until the full extent and nature of special war taxation is developed it may not be practicable to decide what should be the permanent system. But it should be distinctly understood that the recommendations we make in respect to further limitations upon the canning industry in District No. 2 are upon the condition that excessive profits, if any, shall go to the public and that exploitation, as a fact and as a motive, shall be eliminated from the industry.

5. Fishery Administration.

In 1914 the administration of the fisheries was transferred from the Department of Marine and Fisheries to the newly established Department of the Naval Service, although the titles of the departments do not appear to have been formally adjusted to the change. One Minister holds both portfolios, but it is as Minister of the Naval Service he is charged with responsibility for the fisheries.

Under the Minister of the Naval Service, at least four different forms of administrative and scientific work, related more or less directly to the fisheries, are carried on in British Columbia. The administrative system as it affects the Pacific coast is illustrated in the accompanying chart, Diagram 5.

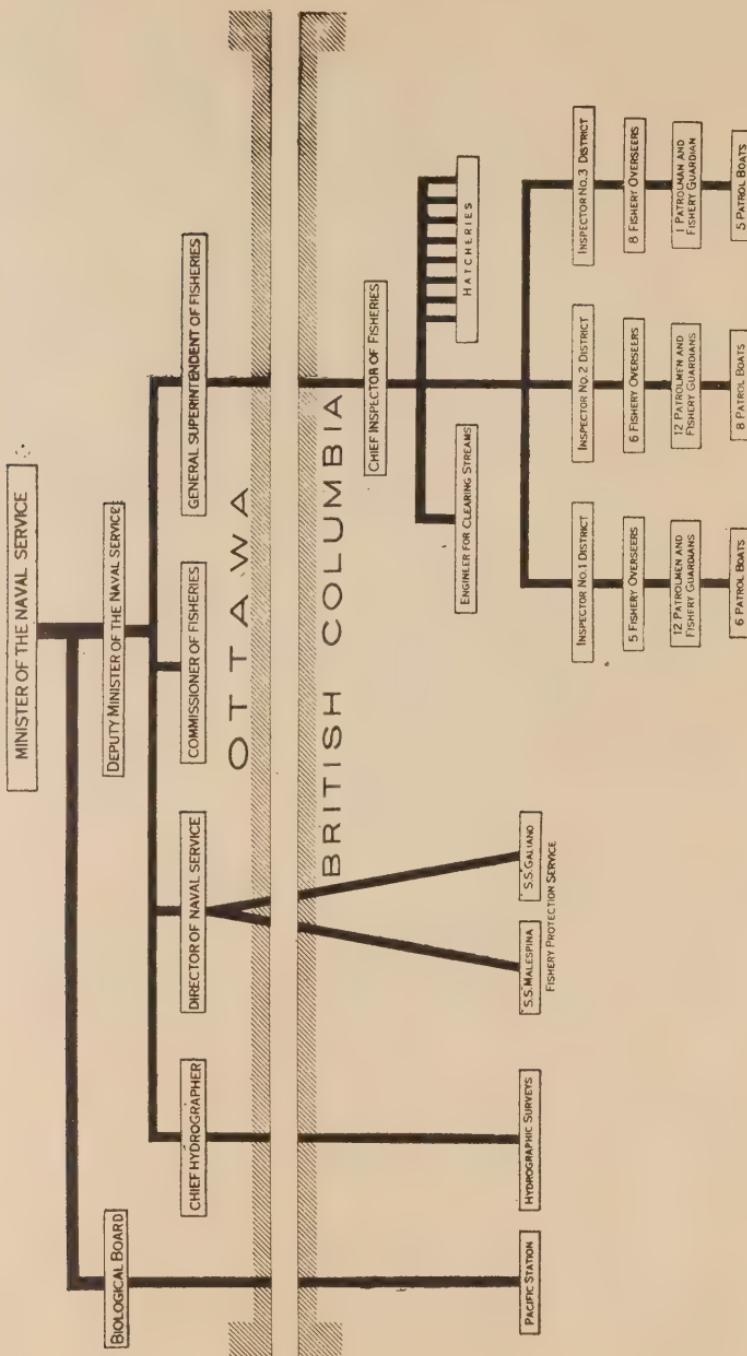
First, on the scientific side, there is the valuable, but inadequately supported, work of the station in charge of the Biological Board near Nanaimo. The Biological Board of Canada is established by special act and is not therefore strictly a departmental subdivision, but is under the control of, and reports to the Minister. Its members serve without salary.

Second, there is the work of the Hydrographic Survey under the immediate direction of the Chief Hydrographer at Ottawa. Such hydrographic survey work as has been done by the Canadian Government on the Pacific coast, has been mainly in the interests of navigation. Outside of a few established trade routes, vessels used in the fisheries are the principal, or almost the sole vessels navigating the waters, and any thing which increases a knowledge of channels is for the benefit of the fisheries; but the possibilities of the extension of hydrographic survey work to the discovery of new fishing banks, and to the mapping out of known fishing areas, so that proper boundaries may be set and efficient regulations adopted, deserve serious consideration. At present casual fishing boats are the only prospectors for new fishing grounds and there does not appear to be sufficiently accurate information with regard to the bottom in any salmon gill-net area to correctly locate the upper boundaries that will meet the purposes of the regulations.

Third, there is the Fishery Protection Service, under the Director of Naval Service at Ottawa, which patrols the territorial waters as a protection against foreign poachers. Two serviceable vessels are kept in commission, each, apparently, separately controlled direct from Ottawa. The crews are recruited yearly.

Fourth, there is the Fishery Inspection Service which deals directly and exclusively with the administration of the domestic fisheries. Under the General Superintendent of Fisheries at Ottawa, there is in charge of this service at the Pacific coast a Chief Inspector, whose office is at New Westminster. Under him are three district Inspectors, one for each fishery district into which British Columbia is divided. Under the district Inspectors are overseers, in charge of particular fishing areas, and under them again are patrolmen or guardians. Steam and gasoline boats and rowboats must, of course, be at the service of all officials engaged in actual inspection work. The enforcement of the regulations is the duty of the inspection staff and only very limited powers in other respects are delegated to it. The Chief Inspector is also the local administrative officer in charge of the eight Dominion fish hatcheries in British Columbia, and since 1913 he has had attached to his staff an engineer whom he directs in the investigation and removal of obstructions in the streams.

Each of these four services is separately controlled from Ottawa, where the immediate administrative direction is in the hands of separate officers. On the Pacific coast there is no provision for co-operation or even for informal conference. The Fishery Protection service is quite distinct from the Fishery Inspection service, and even the two vessels of the former service are separate units. Crews are required for the vessels of both services and also for the vessels used by the Hydrographic Survey, but each service recruits and controls its men separately. There is thus no general service which boys and young men may join as sailors for a term of years, with the opportunities of promotion, which the already considerable number of boats of all kinds controlled by the Department of the Naval Service on the Pacific would afford.



The relationship of governmental administration to the fisheries is probably more direct and intimate than is the case with any other important industry. Without a license from the administration no one, for example, can fish commercially for salmon, nor can he operate a salmon cannery or curing establishment; and the licenses are granted only from year to year. Licenses may be exclusive, limited or general. Capital may be heavily invested in the industry, from the boat and net of the fisherman to the plant and equipment, worth hundreds of thousands of dollars, of the fishing or canning company, but all is subject to yearly license; and the regulations, which set the fundamental conditions of operation, may be altered at the will of the Government or of Parliament, and inspectors are present in all fishing areas to enforce the regulations of the day.

The fishery administration has its hand daily on a great industrial business and shapes all its principal conditions. It is therefore essential that an administration should base its policy on sound, constructive business principles. The fisheries are not only to be regulated and inspected, they should also be improved and extended and made to yield the greatest possible amount of national wealth.

It is, of course, necessary also that there should be honesty, impartiality and equity in the dealings with the individuals who operate the fisheries, and these qualities must be found in every official. No policy can be successful otherwise. Your Commissioners made careful observations and all practicable enquiries and are glad to record their favourable impression of the personnel of the inspection staff in British Columbia. Full opportunity was given at all points visited for evidence as to conduct or practices that were contrary to the public interest. In respect to one condition, evidently very generally believed to have existed almost from the beginning of the industry, opinions were expressed before us in evidence. These opinions were to the effect that political influence has been a factor to be reckoned with. So general and so firmly held does this view appear to be that your Commissioners desire to call it to your attention and to express their sense of the importance of establishing a clear understanding of the position of the Administration, that only dealings direct with itself on business principles can avail. The placing of all appointments to the Fishery Inspection staff under the Civil Service Commission is to be strongly endorsed in this connection, for if recommendations for appointment are associated with political patronage there will always be danger of special claims for consideration.

6. Position of the Province of British Columbia.

By section 91 of the British North America Act, 1867, the exclusive legislative authority of the Parliament of Canada extends to all matters coming within "Sea Coast and Inland Fisheries"; and, by the terms and conditions under which British Columbia was admitted to the Union in 1871, "the Dominion undertook to assume the protection and encouragement of the fisheries of British Columbia and to defray the expenses of the same, and thereby became bound so to do." The above declarations, which appear in the judgment of the Privy Council in 1913, set forth the general position and the obligations of the Dominion.

In British Columbia it was claimed for many years that the Dominion was not affording the fisheries of the Pacific Coast the protection and encouragement they required, and that it was collecting from them by way of license duties much more money than it was expending upon them. To meet this situation, the Provincial Legislature in 1901 passed a Fishery Act providing for the levying of license duties, the proceeds of which it was proposed to expend on the development of the fisheries. This course was adopted in consequence of a judgment of the Privy Council in 1898, in the matter of certain questions relating to the fisheries raised by the Provinces of Quebec and Nova Scotia, in which judgment it was decided that, while the Dominion Parliament had exclusive authority to enact fishing regulations and restrictions, both the Dominion and a Province possessed the right to impose a license duty on fishing for purposes of taxation.

Following the passage of this Provincial Fishery Act of 1901 a modus vivendi was arranged with the Dominion, under which the terms of this Act were not to come into effect, but the Dominion was to continue to collect the revenues and hand over to the Province any surplus over certain expenditures. This arrangement continued until the year 1908, when the Province began the direct collection of license duties. In 1901 the Province established a department to promote the interests of the fisheries, and in 1903 built a fish hatchery at Seton Lake, on the Fraser watershed. Since 1901 there have thus been two organizations, one Dominion and the other Provincial, dealing with certain aspects of the problem of fishery administration. Some differences of view on matters of general policy tended to arise between these two departments. The Provincial department developed, for example, views upon the importance of limiting salmon fishing and canning licenses, which were at least more definite than those held by the Dominion authorities, and became disposed to take the initiative and to exercise a positive influence in the matter of restrictions. This raised a question of jurisdiction which was finally settled by the judgment of the Privy Council in 1913, which declared that the Province could not trench upon the exclusive right of the Dominion to make restrictions or limitations by which public rights of fishing are controlled. Since 1913 the Province has retained its fishery licenses as a mere tax and has expended the money in maintaining its department, its hatchery at Seton Lake and a staff for observation of the spawning beds, and in making provision from time to time for special scientific investigations.

At present the staff of the Provincial department, under the Commissioner of Fisheries, a cabinet minister, consists of an assistant Commissioner of Fisheries, a deputy Commissioner of Fisheries, an inspector of Fisheries, three fishery overseers, and a manager and necessary assistants for the fish hatchery at Seton Lake.

The taxes levied by the province on salmon fishing and salmon canning are of two kinds, license duties and general taxes. The former go to the support of the fishery administration and the latter to general provincial purposes. The provincial license duties, as compared with the Dominion duties, are as follows:—

	Provincial.	Dominion.
Gill nets..	\$ 5 00	\$ 5 00
Drag seines..	25 00	25 00
Purse seines..	50 00	50 00
Trap nets..	25 00	75 00
Cannery license..	400 00	50 00

With respect to the cannery license, the provincial fee is \$100 for each "line" up to four "lines" operated by the cannery, while the Dominion fee is a flat license fee of \$50 for the cannery establishment. While the provincial trap net license fee is only \$25, a foreshore lease fee of \$50 is also charged, so that the total is equal to the Dominion license fee.

The total revenues available for the Provincial Department of Fisheries and the yearly expenditure from April 1, 1908, to March 31, 1917, have been:—

Year.	Collections.	Expenditures.
1908-9..	\$23,072 50	\$16,548 34
1909-10..	31,340 00	21,728 03
1910-11..	82,657 79	17,508 86
1911-12..	26,755 00	23,361 00
1912-13..	32,170 00	33,276 00
1913-14..	40,202 00	39,399 00
1914-15..	34,648 00	31,780 00
1915-16..	33,335 00	23,726 33
1916-17..	38,863 00	24,321 12

The revenue for 1910-11 includes the sum of \$55,000 received by the province from the Dominion in settlement of the balance due under the modus vivendi previous to 1908.

Under general provincial taxation acts salmon canneries are taxed upon the real estate held by them, and upon their product at the rate of 4 cents per case of 48

pounds on canned salmon, and 75 cents a tierce of 750 pounds on mild cured salmon. The receipts from these taxes vary, of course, from year to year.

It is clear that in the Fishery Departments of the Dominion and of the Province there is duplication of organization. The Province has one salmon hatchery and the Dominion eight; the Province has three overseers who pay particular attention to observing conditions of the spawning beds of the Fraser, Rivers Inlet, the Skeena and the Naas, and the Dominion has nineteen overseers and twenty-five patrolmen and fishery guardsmen, from whom some reports on spawning beds are received, but who are chiefly engaged in the enforcement of the law and the regulations; and the Province has provided for some work of a scientific character and so has the Dominion. Your Commissioners visited the tastefully kept and well ordered Provincial hatchery at Seton Lake, conferred with and received evidence from several Provincial officials, and have examined many scientific and other reports published by the Provincial Department, and are of the opinion that the work of this Department has been and is of distinct value. The total of the accomplishments of both Departments, however, has fallen short of the requirements of the situation; and there is the obvious duplication of organization. We would recommend that the Dominion Government, upon which rests the main responsibility for the fisheries, should invite a conference with the Provincial Government for the consideration of the position thus indicated.

QUESTION 1.

"Whether the number of salmon canneries allowed to be operated in District No. 2, British Columbia, should be restricted to the number of licenses for such establishments as are now effective, and if so, for what length of time."

To conserve the supply of salmon in this district fishing is and must continue to be restricted; to determine with reasonable definiteness what the magnitude of the present supply really is, and what effect new measures for propagation and development may be tending to produce, will, owing to the age reached by certain species before they return to the rivers, require careful study for a period of not less than five years; in the meantime the evidence clearly indicates that the quantity of salmon caught in recent years is probably the maximum quantity that may safely be taken until the supply is proven to have substantially increased; and unquestionably the existing plants are more than adequate for the canning of that quantity of salmon, the pack of 1916, for example, which was the third largest in the history of the district, having occupied these plants, on the average, to only 17 per cent of their theoretical efficiency for 62 days on the basis of a 12-hour day, or to 25½ per cent on the basis of an 8-hour day.

We therefore recommend that the number of cannery licenses be not increased for a period of at least five years; and that on the general principles already laid down, and in view of the greater stability thus given to the industry, the license duties imposed on canneries be greatly increased and be graduated according to the number of fish taken for canning and according to the profits realized, so that while enjoying adequate return for capital and enterprise the canneries may contribute to the public treasury, for the propagation and conservation of the salmon or for other proper public purposes, due compensation for the privileges conferred.

These recommendations are based on the facts and considerations set forth in the introduction to this report, which must be read in connection with them.

The recommendation as to the limitation of the number of cannery licenses applies to the Naas, Skeena, Lowe Inlet, Butedale, Bella Coola, Bella Bella, Dean Channel, Namu, Rivers Inlet and Smith Inlet fishing districts within District No. 2, which were the fishing districts examined by the Commission and, with the exception of Aliford Bay and Naden Harbour, on Queen Charlotte Islands, were the only districts in which canning operations were carried on in 1907. If careful prospecting establishes, in any area not now fished in connection with existing canneries, a sufficient run of salmon to warrant a new cannery or canneries, such a case should be dealt with on its merits.

In recommending that the number of cannery licenses be not increased, we do not mean that the number should necessarily be maintained at the present total. There are cases in which two or more canneries in a fishing district are owned and operated by one company. It would often be in the interest of efficiency to consolidate the business in one cannery, but the expense is now incurred of operating all the canneries in order to retain the boat-rating and to leave less apparent excuse for the issuing of licenses to new canneries. We are of the opinion that temporary or permanent consolidations of this kind, for sound business reasons, should rather be encouraged, and on the principle we advocate the public interest would also be served. In such cases we do not think new licenses should be issued.

For the reasons mentioned in the introduction, namely, that the nature and extent of special war taxation has not yet been fully developed, and also that there is not at present any understanding between the Dominion and the province in the matter of the exercise of their overlapping taxing powers, your Commissioners considered it impracticable for them to draw up at this time a just system and scale of cannery taxation from the standpoint of the Department of Fisheries, but even under existing conditions would think that the minimum canning license fee should not be less than \$1,000 per year. We would recommend that a form be drawn up by competent accountants for yearly returns from each cannery showing the main items of cost, the business done and the profits. The accounts of the companies are not at present kept on any uniform system and returns taken from their books cannot fairly be compared.

Restriction of canning licenses is not a new policy, for it was in force in District No. 2 from 1908 to 1912. The Fishery Commission of 1905-17 in their interim report of December 8, 1905, had found as follows:—

“The limitation of the number of salmon canneries in such northern areas as Rivers Inlet, Skeena River and Naas River has been strongly and influentially urged upon us in the course of our sittings. We recommend that effective measures for securing some limitation of the exploitation of those waters be sanctioned immediately, so that the parties may not be unduly encouraged in preparations and in expenditure with a view to new cannery enterprise in the northern areas referred to.”

In his letter of instructions to the Boat-bathing Commission of 1910 the Minister of Marine and Fisheries set forth:—

“That prior to 1908 there was no act to prevent any person or firm who wished to do so, from establishing a salmon cannery or otherwise engaging in salmon fishing and curing.

“That under the Fishery Regulations of 1908 it became necessary to obtain, from the Minister of Marine and Fisheries a license before operations could be undertaken, and it was set forth that no additional canneries would be licensed in the Northern District of British Columbia. The object of this regulation was clearly to enable the Minister to control the fishing in waters that had been already exploited to the limit that their permanence would stand.”

This Commission reported against any increase in the number of canneries.

The Government of British Columbia and its Fishery Department had for years advocated restriction, and in 1908 passed a Canneries Revenue Act which provides that:—

“It shall be unlawful for any person to operate a cannery in this Province unless and until such person shall have been duly licensed under this Act and shall have paid the license fee and obtained the license hereinafter provided.”

We understand it was the intention by this Act to enforce a limitation of the number of canneries if the Dominion had not taken action. The Privy Council

judgment of 1913 finally disposed of any claim on the part of the Province to regulate or restrict fishing, but although the Provincial Act providing for fishing licenses was in consequence changed to a mere taxation act, the Canneries License Act still stands, the Province not yet being satisfied that it cannot control canneries as manufacturing plants within the Province, even if it is beyond its power to restrict them as factors in the fishing problem. There is here conflicting jurisdiction, and although the Province has not attempted to use the provisions of its legislation to block the increase in cannery licenses granted by the Dominion since 1912, we are given to understand that it holds today as firmly as ever that a limitation of cannery licenses is essential to the success of the industry and is in the public interest.

The first departure from the policy of restriction as adopted by the Dominion authorities in 1908, was made in the year 1912 to meet a special case, in which the special condition that only white fishermen should be employed was imposed; and on the ground that this special condition would tend to encourage white settlement it was intimated that applications for new canneries might be considered from time to time on the same terms. But the special condition has not been adhered to or insisted upon, and under continuous pressure one more new license was granted in 1913, three in 1916 and four in 1917. Early in 1917, notice was given that, beginning with 1918, all restrictions as to the number of cannery licenses would be removed. Our enquiries indicate that the pressure of applications for new licenses has been chiefly from two sources. The first is certain managers of canneries who, having worked many years in that capacity, feel they would like to promote companies of their own; and the second is certain existing companies which think they could strengthen their strategical position in the competition with other companies by building competing canneries in districts where their rivals are apparently successful. Sympathy with the natural aspirations of cannery managers may well be felt, but it is not often, judging by the instances brought to our attention, that they have succeeded in raising sufficient capital to establish themselves independently and avoid the necessity of being taken over by existing companies. Neither the ambition of an individual, nor the business strategy of a company, is in itself sufficient ground for a change in public policy, and we do not regard the general results of the departure begun in 1912 as having improved the situation from the public point of view, and we believe that the removal of all restrictions, under the present conditions as to the supply of salmon, would only open the way toward inefficiency and loss.

It is of interest in this connection to note that, according to press reports in June last, the Board of Extraordinary Industrial Investigation in Japan, at a conference with representatives of the fisheries industry has reached a decision, among other things:—

“To discourage all disadvantageous and useless competition, to the end that suitable and orderly progress and development may be made in the fisheries industry.”

QUESTION 2.

“Whether motor boats should be allowed to be used in salmon fishing operations in the said district.”

On March 14, 1911, a regulation was passed that “no one shall use a motor boat or a boat propelled otherwise than by oars or sails in salmon fishing operations in District No. 2.” This action, which was in accordance with the views of most of those engaged in the industry, was taken, in the words of the Order in Council, “in order that the amount of salmon fishing in District No. 2, British Columbia, may be controlled, as contemplated by the boat-rating established under Order in Council of the 22 December, 1910.” The prohibition of the use of motor boats was limited in 1912 to salmon gill-net or drift-net fishing and has remained in force to the present date, but by Order in Council of the 30th March, 1917, the regulation was rescinded

to take effect January 1, 1918. Representations made after the announcement of this change of policy led to the reference of the question to this Commission.

We recommend that, under existing conditions, the new policy be not put into effect, but that the prohibition of the use of motor boats in gill-net areas in District No. 2 be continued for a further period of five years, when the question can be reconsidered.

The evidence submitted both by the fishermen and by the cannerymen directly concerned was overwhelmingly against allowing the introduction of motor boats at the present time in the gill-net areas of District No. 2. Formal petitions against permitting their use were presented by organized bodies of white, Japanese and Indian fishermen, and although a few white fishermen made representations on the other side, the case for the motor boats was urged chiefly by those who were neither fishermen nor cannerymen.

The argument against the motor boats was that the results from their use would not justify the additional cost. The fishermen, with few exceptions, stated that they were not now financially able to pay for motor boats at prevailing prices, and that they were unwilling to become indebted for so many hundreds of dollars because they did not believe they could, by the use of motor boats, earn enough more to liquidate the debt within a reasonable time. The cannerymen held that the financing of the purchases would prove an unprofitable investment for them. A motor boat in competition with row boats would undoubtedly give its owner an advantage, because the motor boat could, for example, arrive first where jumping fish indicated the presence of a school of salmon. If any fisherman had such a boat, every fisherman would feel it necessary to secure one; and if any cannery decided to finance these boats, every other cannery would do the same in order to hold the good fishermen. When all were equipped all would be relatively upon the same level again, but subject to heavier costs, which would not be compensated for by the greater catch the motor boats might enable the fishermen to secure. As only a certain number of fish can safely be taken, it was recognized that any greater efficiency in the motor boats would have to be met by a reduction either in the number of fishing licenses or in the period in which fishing is allowed.

It was also represented, with some force, that in the present crisis it was unwise to create a new demand upon capital, upon engine builders and upon gasoline. Even if a portion of the supply of motor boats for District No. 2 might be obtained from the overstocked Fraser River, this would only partially affect the demand and might raise new problems, for the fishermen in the north would not consent to being displaced by the Fraser River fishermen, who are mostly Japanese, nor would they be prepared to assume the heavy mortgages now standing against these boats in addition to such compensation as might induce the Fraser River fishermen to retire from active fishing.

A consideration not to be overlooked from the administrative point of view is that, if the fishermen could move rapidly with motor boats, the task of the fishery overseers and guardians, whose duty it is to prevent fishing beyond defined boundaries and during the weekly close season, would be enormously increased and would require a very much larger staff.

On the other side, it was argued that, as compared with rowboats, motor boats are an improved means of transportation by water, and that it is unprogressive to prohibit their use; that if a fisherman owns or is prepared to purchase a motor boat it is unreasonable to prevent his using it; that motor boats would be more comfortable for the fishermen and would save them much hard labour; that a motor boat, suitable for gill-net fishing, could be used also for trolling and other kinds of fishing in the inside waters during the other months of the year; and the business men of Prince Rupert urged also that, if the fishermen could more easily move to and from the fishing grounds, it would tend to encourage trade with and domicile in that city.

We are fully sensible of the force of the two first arguments as general propositions, but do not think they can weigh against the practical stand taken by the great

majority of the fishermen themselves. With regard to the remaining arguments, it may be pointed out that no actual fisherman complained before us of the hardships of fishing with rowboats, which are towed out to the point where the fishermen begin their drifts and towed back again to the cannery by tugs, or by the collector boats that make regular rounds to bring in the fish; that there is profitable employment for all the motor boats now owned in the north in trolling for spring salmon and cohoes, which the owners of these boats prefer to gill-net fishing; and that motor boats suitable for gill-net fishing cannot be used in the open waters where halibut and cod are chiefly caught.

We have suggested a period of five years before a change of policy is considered. Cannery licenses have been issued for new canneries which are either not yet constructed or not yet fully equipped. If motor boats were allowed these canneries would undoubtedly provide for financing them and start the rush for that class of boats, which would spread through the whole district. On the other hand, if motor boats are not to be allowed, the policy should be fixed for a period long enough to show a return for the new canneries upon an equipment of rowboats or sail boats. A five year period was requested by the organized fishermen and this would correspond with the period suggested in the answer to Question 1.

QUESTION 3.

"Whether the number of fishing boats to be used in any area should be enlarged or reduced, (a) if motor boats are allowed, and (b) if rowboats only are permitted, and if so, by how many in either case and in either direction."

The number of fishing boats to be allowed in any area must be determined by the number of salmon that can be caught in that area without danger to the permanence of the supply, if it is already adequate, or to the proper increase of the supply, if it is below the capabilities of the spawning beds of that district. It is a problem of conservation and development, and should be worked out from that point of view alone.

Since 1904 there have been restrictions upon the numbers of boats allowed to be used in the different fishing areas of District No. 2, first by voluntary agreement among the canners, then by decision of a board appointed by the canners, then in 1910 under the authority of the Provincial Government and since that time by regulations of the Dominion Government. The Dominion boat rating, which went into effect in the season of 1911, was based on the findings of a commission which carefully studied the situation in detail. The fishing history of the district since that date would seem to indicate that the numbers then fixed were probably the maximum numbers that should be considered. In no area is there evidence that the supply has increased, and in no area have the fishermen enjoyed excessive catches. There is, on the other hand, some ground for the opinion that the supply has not been fully maintained.

Nevertheless, there has been a tendency to break through the limitations and gradually increase the number of boats. This has come about because of the difficulties arising through the granting of additional cannery licenses. After a cannery had been constructed on license from the Dominion it claimed the right to a supply of fish, and this could be secured only from the catches of boats that had previously furnished the material for other canneries, or from the catches of additional boats allotted to it. Continual readjustments of a fixed number of boats among an increasing number of canneries, every new allotment representing a further measurable reduction of the efficiency of the established plants, constitute an intolerable, if not actually impossible, administrative problem, and it was almost inevitable that some concessions would be made, and that the administration would be anxious to throw the solution upon the canners by abolishing the attached licenses altogether, and leaving the canners to scramble for the relatively diminishing quantity of boats. The boat-rating has been somewhat increased in the districts in which new canneries have been licensed,

the limit having been finally removed altogether on the Skeena river, which has been given four new canneries, and by the Order in Council of March last, all attached licenses were to be abolished after this year.

The conservation of the supply of salmon being the fundamental and absolutely essential consideration, the amount of fishing to be done must be determined solely on that consideration. What should be the policy toward canneries must be decided with reference to the necessary restrictions on the fishing, and not fishing restrictions with reference to cannery policy. As already pointed out, the evidence, scientific and otherwise, is not definite enough to form a satisfactory basis for conclusions of any decisive character, and without a much more detailed study than we were able to give to the special conditions in each case, we are not in a position to work out a new boat allotment for the different areas.

We recommend that there be no increase in the number of boats allowed to be used in any of the areas in District No. 2, defined in the Order in Council of 1912. We are of the opinion, indeed, that certain reductions are desirable and may with further observation be found necessary, but on the inconclusive evidence before us we are not prepared to recommend specific reductions. In view of other recommendations we are making in this report we are satisfied to leave the numbers of boats as at present, the maximum limit of 850 being re-established for the Skeena River. We cannot determine whether the 90 boats added in Smith Inlet since 1912 are, or are not, the fair equivalent of the seines which have been cut off, but we advise that developments in this area be very carefully watched.

If motor boats are allowed, we recommend a material reduction in the present boat-rating. In drift-net fishing the net is set across the line of the current, and the fisherman's boat is then made fast to one end, and boat and net drift with tide. From time to time the fisherman may run over his net to take out the fish or, if his catch is poor or he sees fish jumping elsewhere, he may haul in his net and set it again in some other location. While the net is in the water it makes no difference what kind of boat is tied to it. A rowboat will drift as well as a motor boat. The only advantage of the motor boat, so far as the catching of fish is concerned, is that with it the fisherman can move more rapidly to a new location. Because of the narrowness of the channel at certain points, or the conformation of the bottom, or by accident of the run of fish, some reaches may give better results than others, and a man with a motor boat may return more easily than a man with a rowboat to get a second drift over a particular reach on the one run of the tide; but he may make a mistake by moving his net at all. Assuming, however, that the fisherman is experienced, he will probably in a majority of cases increase his catch by the changes he thus makes. In some areas a rowboat cannot make head against a running tide where a motor boat can, and in these cases a second drift is impossible with a rowboat. The comparative advantage of the motor boat is therefore that it makes practicable more second drifts and shortens the time the net is out of the water in making changes. It may, however, encourage more moving about, and the man whose net loses no time by being hauled and reset will sometimes get the greater results. It is clear, however, that a motor boat will enable a skilful fisherman to act more quickly on his judgment than will a rowboat, and it is a more effective instrument for that reason. This is quite apart from whether it would prove profitable at the extra cost. The chances are that the fish necessary to seed the spawning beds are less likely to escape motor boats than rowboats, and consequently the former should be allowed in fewer numbers than might be safe for the latter. What the relative efficiency is, it is impossible to calculate, but we think if motor boats are allowed, it would not be wise to reduce the present boat-rating by less than one-quarter to one-third, according to the nature of the currents in the different areas. Some witnesses estimated a much higher relative efficiency than this for the motor boats, and experience would have to determine whether further reductions should be made.

QUESTION 4.

"Whether any of the boats authorized to be used in any area should be licensed to fish in connection with specified canneries only, and if so, what proportion of such boats."

We recommend that only one form of salmon gill-net license be issued, and that competence as a fisherman be established as a qualification for a license.

Two forms of gill-net license have been issued in District No. 2. Printed on the top of one are the words "Attached Salmon Fishery License for Gill-nets or Drift-nets," and on the other "Unattached Salmon Fishery License for Gill-nets or Drift-nets." The texts of these licenses differ only in this respect, that in the former the right to fish is stated to be "in connection with Cannery Curing Establishment." These differences of form are due to the development of administrative conditions.

When canneries were first established in the north, and for many years afterwards, there was no population along the northern coast, with the exception of the Indians, and there was no fishing class of any considerable numbers in British Columbia. It was necessary for the canners to engage, wherever they could, such labour as they required to supplement the local Indian labour, and take the men north with them at the opening of each season at an agreed rate of monthly wages, or partly at an agreed rate of monthly wages and partly at an agreed price per fish caught, and provide boats and nets for their use. The canners furnished the fishery officers with the names of the men thus engaged, and licenses were issued accordingly to such as met the simple qualifications of British citizenship and residence in the Province of British Columbia. During the time the Provincial Fishery License Act was in effect, and until the judgment of the Privy Council in 1913 settled the disputed question of jurisdiction in favour of the Dominion, two licenses were required for each fisherman, one from the Dominion and one from the province.

White men willing to engage in gill-net fishing were few in numbers, and the fishing was done chiefly by Japanese and Indians. Many Japanese fishermen were attracted to British Columbia because of the opportunities for employment by the canneries, and the Japanese have continued to furnish a more or less adequate supply of fishing labour and have proved themselves industrious and skilful fishermen. They have qualified for licenses by taking out naturalization papers and by taking up residence in British Columbia.

Although the Government had in the beginning imposed no limitation upon the numbers of licenses to be issued in District No. 2, the canners themselves early recognized that a restriction upon fishing was in the best interests of the industry and was necessary for the conservation of the supply of salmon, and for many years agreed among themselves as to the total number of boats to be fished in each area, and as to the distribution of these boats among the various canneries. The last mutual agreement was made in 1904, and held for two years. In 1905 a Dominion-British Columbia Fishery Commission studied the situation, and urged effective measures against exploitation. In an interim report, dated December 8, 1905, it advocated that official sanction be given to what up to that time had been a voluntary system of boat-rating, and that a limitation be placed on the number of canneries. On the former point the Commission reported:—

"We recommend that, hereafter, the number of boats used in salmon fishing operations should be limited in the waters specified. Further, we are of the opinion that it should be officially suggested to the canners interested that they should mutually agree to carry out a fair allotment of the boats amongst themselves on the lines followed by those canneries in previous seasons, as indicated in evidence laid before us as a Commission. Failing such an allotment by local parties operating canneries in the area referred to, then the matter to be adjusted by the fishery officer in charge of the water concerned, and under the authority of the Department of Marine and Fisheries."

Action was not taken by the authorities on this recommendation, and having failed to renew their mutual agreement, the canners in 1908 submitted the question to a board of three men. The award made was observed in 1908, but in 1909 some canners increased the numbers of boats allotted to them, and when it appeared certain that all other canners would do the same thing during the following season, the Provincial Government took prompt action and fixed the number of gill-net licenses it would issue to each cannery. On April 7, 1910, it communicated to the Dominion Government the action it had taken, explaining that, if the season had not been so far advanced, conference with the Dominion would have been asked for, and suggesting, in order that there might be no conflict, that the Dominion Inspectors be directed to limit the number of Dominion licenses to conform with the Provincial lists for that season, and further suggesting that at the conclusion of the season there be a conference to determine the joint policy for the next season. On June 4, 1910, a Commission was appointed, consisting of a representative of the Dominion Government and a representative of the Provincial Government. In his letter of instructions to the Commission, the Minister of Marine and Fisheries set forth that, in 1908, it had been decided that no additional canneries would be licensed in the northern district of British Columbia, and proceeded:—

"The object of this regulation was clearly to enable the Minister to control the fishing in waters that had been already exploited to the limit that their permanence would stand. Since the adoption of the regulation it has become more and more apparent that if its intention was not to be nullified, it is necessary to adopt by regulation an equitable and just boat-rating for each different cannery. That such a rating is a matter that needs to be approached with the greatest care, and should be decided only after the various related conditions have been thoroughly investigated and carefully considered. It is also evident, from a review of the past efforts of canners to agree upon such a boat-rating, that nothing short of a governmental regulation will suffice."

The Commission reported in December, 1910, fixing the number of boats to be allowed in each fishing area and the number to be fished in connection with each cannery. On December 22, 1910, an Order in Council was passed amending the Regulations by the addition of the following clause, to which was appended a list of the canneries with the numbers of boats allotted to each:—

"In Fishéries District No. 2, British Columbia, no boat shall be allowed to engage in salmon fishing except under license from the Minister of Marine and Fisheries, and in connection with the following named salmon canneries or salmon curing establishments, not more than the number of boats, drag or purse-seines stated opposite thereto, shall be licensed."

The attached license thus became recognized in the Regulations, and the license form thereafter contained the words "in connection with Cannery Curing Establishment." Under the system of employment which had developed out of the labour conditions of the Province, a man was under engagement to some cannery before a license was applied for or issued, and the new Regulation therefore did not effect any practical change in the position of the fisherman. It placed a limitation on the canner.

But labour conditions in the Province were undergoing an important change. The general population was increasing, and with it every class of labour, and most important of all, settlers were finding their way into such northern districts as were considered suitable for cultivation, and these settlers required outside employment during a portion of the year to assist them in supporting themselves while clearing their land and performing their pre-emption duties. It was a matter of public policy to promote settlement, which implied that public policy could not be indifferent to the need for incidental employment. In the north the only occupations that suited this need were

fishing and logging. Salmon fishing was the established kind of fishing which fitted the case, because it occupied only two or three months in the year. A very strong demand therefore arose that settlers should be given full opportunity to engage in salmon gill-net fishing. These settlers were, however, almost without exception, inexperienced in gill-net fishing. If the canner had to furnish nets and boats he would be putting into the hands of an inexperienced man property worth several hundred dollars, which is easily liable to damage or destruction, and he would be running the risk that the settler would not catch anything like as many fish as the man the canner had been employing, whom the settler would displace. These obvious considerations led to the demand taking the form that settlers should be granted licenses without having to compete with other labour for prior engagement by the canners. Based on the popular belief in a public right to fish in tidal waters, subject only to proper governmental control, the demand, and the agitation in connection with it, became perhaps unreasonable and extreme; but the conviction was present, that if the right to fish belonged fundamentally to all citizens equally, then every class of citizens, and certainly the class needing it most should have a fair chance to exercise the right, subject only to conditions fixed by the Government. The situation thus created called for the defining of a governmental policy. The Dominion Superintendent of Fisheries and the Deputy Commissioner of Fisheries for the Province were directed to report upon the best course to be adopted, and, on August 7, 1912, presented a joint memorandum setting forth that, whereas the recommendation of the Boat Rating Commission of 1910 suited the conditions up to that time, it had become eminently desirable to encourage the white settlers in the north and to induce further settlement of this class, which might permanently furnish not only salmon fishermen but deep sea fishermen as well. To meet any difficulty there might be about obtaining employment from the canners, since the total number of boats in each area was limited, it was recommended that licenses be granted to applicants from the above class who owned their own boats and gear, and that these men be free to sell their catch to whomsoever they chose. These applications were to be received up to the end of February in each year, and the balance of the licenses for each area not thus taken up were to be filled by the canners as in the past, the proportions of the former cannery boat-rating being preserved.

The only change made in the Regulations, following this report, was the repeal of the clause allotting boats to individual canneries and the passing of another clause fixing the number of boats to be fished in each area at the total number formerly allotted to the canneries in that area. As a matter of administration, however, there have since been issued the two forms of license, attached and unattached.

The unattached, or commonly called "independent" license, was thus supposed to be issued because the applicant was a settler, and because he owned his own boat and nets. But bona fide white settlers, occupying land capable of being converted into farms or gardens, were after all comparatively few, and the number will never be great along the northern coast. Moreover, the settlers did not own nets, and few had suitable boats. Again, with the establishment of Prince Rupert, and particularly when the construction of the Grand Trunk Pacific Railway was being completed, white labour of a different class became available in the north and claimed equal treatment with the settlers. Under these conditions some indirect and even undesirable methods came to be adopted, in order to present the appearance of complying with the qualifications for an independent license. The man who had not boat or nets, made an arrangement with some canner to supply them, the boat being borrowed without consideration and the nets being purchased on certain terms and conditions. The "independent" fisherman agreed to deliver his total catch to that cannery, and he was to be credited in the books of the company with a higher price per fish caught than was allowed to the attached man, but must pay the cost price of the net or nets used by him within a certain period, generally about two years. As the life of the net was not often longer than the time taken to pay for it, and as the extra price paid for the fish did not often do more than cover payments on the nets, and sometimes did not even do that, and as there was no use for the nets except in the short salmon fishing season and they were left to be stored

at the cannery, the result was a somewhat complicated system with apparently little to recommend it, and with all the disadvantages of indirectness.

The man who wanted work, but was not a settler, could file a pre-emption on a pile of rocks at a cost of a \$2 pre-emption record fee. This led to the creation of a class of "raft-farmers." Your Commissioners saw three or four rafts with little cabins on them, moored to a shore on which it would be difficult to land, and facing pre-emptions, on which one could not pitch a tent, much less find soil for even a patch of garden. Having thus qualified as a settler, the man could qualify as the owner of a boat and net in the manner already described.

It was not until your Commissioners reached the Skeena River that they found the first man who was the outright owner of a boat and net, and the total number of such is very small.

In view of developments such as these, under the administrative policy adopted in 1912, which could not well have been foreseen, it is now a question whether some modification is desirable. With the general object of that policy—to provide opportunity on some reasonable basis for all the different elements in a population not yet fully assimilated and unified—we are in agreement. The bona fide white-settlers in the north should undoubtedly have a chance to share in the opportunity to fish, but it appears clear that to make agricultural settlement the basis of qualification for a fishing license is not satisfactory. Genuine agricultural settlement cannot be greatly promoted by that means, and fake settlement is demoralizing. The fisheries are of such outstanding importance, both in their present development and in their possibilities, that they should have a qualification of their own.

Again it would not seem necessary, at least in the north under present conditions, that a man should be the real, or even nominal owner of a boat and nets in order to be qualified for a gill-net license. The use of nets of this kind is restricted to clearly defined areas and to certain seasons and they can be turned to no account by their owners during the balance of the year. The fisherman cannot buy a net to as good advantage from anyone else as from the canner, who quotes him practically wholesale cost; and it is difficult to see why he should have to buy the net at all, unless he chooses to, when the canner is willing to give the use of a net and carry the risks on terms that are apparently as favourable as when a net is purchased by the fisherman. So doubtful is the financial advantage to the fisherman of receiving a higher price for fish and then paying for a net, that many "unattached" fishermen have preferred to operate on the "attached" terms.

Then, licenses issued to men who qualify as settlers and owners of boats and nets are supposed to put these fishermen in a position to sell their catch day by day to whomsoever they choose. They are to be "unattached" or "independent". But we did not learn of any fishermen who even attempted to sell today to one man, and tomorrow to another. It is very questionable whether the industry could be successfully carried on in that way, from the point of view either of the fisherman or of the canner. Contracts for the season will probably generally be made, even where there is no financial obligation to the canner. Where there are such contracts, any real difference of status between the attached and unattached fishermen disappears. Among the actual fishermen themselves we found little or no feeling on the question of status, but, from the evidence of outsiders, it would appear that loose thinking and undesirable comment are prevalent in certain quarters. Because the unattached license is commonly called the "independent" license, it is argued almost that a man should not be bound even by a contract to a canner; and because one license is called "independent" the other license is held to be dependent, and one or two witnesses referred to operations under such licenses as "slave labour". However absurd such a point of view may be, it must be recognized that the existence of two forms of license, with opposite designations, must tend unnecessarily and unwisely to emphasize differences of condition that may exist, or to create differences that should not exist.

It is under these conditions we are recommending that only one form of license be issued in future, a gill-net or drift-net license, without reference to its being issued "in connection with" any cannery.

On the important question of qualification for such a license, we think it proper that British citizenship should be strictly insisted upon, as it is to-day, and although residence in British Columbia does not, according to the judgment of the Privy Council, give a citizen any greater or other right to fish in the tidal waters of British Columbia than does residence in any other part of Canada, no serious objection need be raised to the present qualification, since the industry must depend on residents of the coast districts.

If the applicant is possessed of the above elementary qualifications, it appears to your Commissioners that competence as a fisherman should be the strongest claim to a license. If a man has skill in any occupation it is desirable to encourage him in following it. As it is considered necessary to limit the number of men fishing in any area in order to conserve the supply of fish, and as on the other hand it is sound public policy to have caught and utilized all the fish that can be spared without diminishing the supply, it is important that the limited number of fishermen engaged should be competent and industrious. Moreover, each fisherman must use property worth several hundreds of dollars, and economic waste through unskilful handling should if possible, be avoided.

To establish a basis of qualification as to competence, we recommend the creation of local boards consisting of three persons, one representing the Government, one selected by the fishermen and one selected by the cannery. It would be easy for boards of this kind to set a proper standard of efficiency, and by securing evidence, or applying tests, decide upon the fitness and proficiency of applicants. Somewhat similar boards now exist in the coal mining industry in British Columbia. A certificate of competency, granted by such a board, would be valued by the recipient, who would thus be established as a master of his occupation; and it is probable that it would accomplish a great deal toward building up a permanent, skilled fishing class on the Pacific Coast. The certificate would have practical value also, inasmuch as the holder, so long as he remained in good standing, would have a prior claim to a license in any district where the system was applied, and no doubt the officials of the Department might consider a gill-net certificate as a strong recommendation of an application for other fishing licenses as well. It is not suggested here that a gill-net license should be granted only to the holder of a certificate, for master fishermen may not be numerous enough for many years to take up all the licenses, and men must be given the chance to acquire the necessary skill if the supply of master fishermen is to be kept up. But certificate holders should be considered for licenses before all others.

Applications for gill-net licenses should be required to be made on or before April in each year, and applications by mail, at least in the case of certificate holders, should be considered. It seems to us important that a date, somewhat in advance of the opening of the salmon gill-net season, should be fixed for applications and should be strictly adhered to, for time should be allowed for the making of necessary arrangements both by fishermen and cannery. In ordinary circumstances a man should be expected to have made up his mind by April 1 as to whether he wishes to work during the salmon season, and he can have no ground for complaint if belated applications are disregarded.

If the applications for licenses received by April 1 in any year exceed the number that can be granted on account of the boat-rating for the area, then the allotment can very properly be made in accordance with the composition of the general population of the coast districts of British Columbia as shown by the latest census. This would apply both to certificate holders and to those who were not. In 1914 out of a total of 2158 gill-net licenses issued in District No. 2 only 93 were held by native born Canadians other than Indians; and in 1916 only 102 out of 2,126 issued. For many reasons, economic, sociological and military, it is far from satisfactory that the native born Canadins, other than Indians, who constitute more than three-quarters of the total population of Canada, and almost 40 per cent of that of the Province of British

Columbia, should take so little part in fishing on the Pacific Coast, and it is desirable that they should have reasonable encouragement, or at least full opportunity, to devote themselves to this important industry. On the other hand, it is equally desirable that every class that comes to Canada to make permanent homes here and become citizens, should have proportionate opportunity of engaging in every kind of honest, useful work. The blending of the various elements of the population in work is the best way to bring about real national assimilation. If disproportionate consideration is to be given to any class, we feel that it should be to the Indians. The position and point of view of the Indians was placed before us with ability and eloquence by Indian spokesmen. While we cannot agree with the extreme claim to a sort of prior right to do commercial fishing, in view of the fact that the Indians can do now all they could before the advent of the white man, that is, take whatever fish they can use themselves, nevertheless the tastes of the Indians have been becoming more diversified, and they need many things which can only be secured with money and the opportunities on the northern coast for earning money are very limited except in commercial fishing. All the Indians who by steadiness and skill can qualify for a certificate of competency may well be given an opportunity out of proportion to other elements of the population, but the standard should be applied in their case just as in that of others. Such Indians as have not the character or the application to work that will render them efficient even in an occupation for which they should be well adapted, are properly a general public charge and it is a matter for separate consideration what share of their support should fall upon the fishing industry.

The agricultural settler who is clearing land and honestly fulfilling his pre-emption duties deserves also special consideration, but as most of those now in this position have already had experience in gill-net fishing, and as the numbers will increase only slowly, we would anticipate no difficulty in respect to them.

We recognize that in recommending that licenses be not in future issued "in connection with" any cannery, we are definitely re-opening a question which has proved very troublesome in the past. The attached license, and a boat-rating among canneries, is undoubtedly the most satisfactory arrangement for the canners. On general grounds we do not think the attached license should be continued; neither do we think, despite the history of the difficulties the canners have experienced in reaching an adjustment among themselves, that the Government should have to go to the length of fixing for each cannery the number of boats of which it may take the catch. The changes in system we are proposing should result in providing skilled fishermen, and the length of time between the date for receiving applications for licenses and the opening of the fishing season should give reasonable opportunity for a businesslike negotiation of contracts. A field for wholesome competition will remain.

For two reasons, however, we recommend that the new system under this head be not put into effect until the season of 1919; first, because the fishermen are now scattered and it would probably be impossible to acquaint them all with the new conditions before April 1 next, and it would clearly be impossible to provide for certificates of competency by that time; and second, and in view of the above facts, it would be unfair to require the canners, the great majority of whose fishermen are now "attached", to meet radically new conditions without a reasonable period for adjustment. In our opinion licenses should be issued in 1918 on the principles prevailing in the past, and the fishing season of next year should be taken to thoroughly familiarize all interests with the details of the new system, and to put into operation the boards for establishing qualifications.

QUESTION 5.

"Whether the export in a fresh condition of other varieties of salmon than sockeye should be prohibited, and if so, to what extent."

While convinced that the situation in which the above question has been raised has serious aspects, we are not prepared, under present conditions, to recommend that export be prohibited.

The export of fresh sockeye is now prohibited, but in the Fraser River district (District No. 1) and in the southern portion of Vancouver Island waters, which are in District No. 3, there is now international competition for the other species of salmon. Without an expense for icing and for handling which, ordinarily, the canning industry could not afford, fish cannot be transported great distances and it is therefore chiefly at points within comparatively easy reach of the canneries in Puget Sound that the United States buyers compete with the Canadian canners.

Two special interests are affected, the Canadian canners and the Canadian fishermen, but there is also what may be called the special interest of the fish, that is the effect of existing conditions on the conservation of the supply.

The representation of the canners is, that the export of the other species of salmon than sockeye for canning or curing purposes should be prohibited, leaving export open to the fresh and frozen fish trade. Restriction on exports is no new policy in the British Columbia salmon fishing industry. At least as early as 1894 the Dominion Regulations provided that all salmon caught for the purpose of being frozen, canned, salted, cured or smoked shall be so frozen, canned, salted, cured or smoked in the Province of British Columbia." (Sec. 19).

In 1904, when numerous trap-net licenses were being applied for, it was made a condition of such licenses, by section 6 of the Fishery Regulations, that:—

"The export for the purpose of canning or manufacture of fresh salmon, captured in trap-nets in the waters of British Columbia, is prohibited. Contravention of this prohibition shall entail cancellation of the license held by the parties found guilty of exporting fresh salmon for canning or any process of manufacture."

By Order in Council in 1907, Section 19 of the Fishery Regulations of 1894 was amended as follows, and became a general regulation with regard to export from the province:—

"All salmon caught shall be frozen, canned, salted, cured or smoked in the Province of British Columbia, before being exported; provided that salmon, fresh or on ice, may be shipped for immediate consumption in Canada."

Up to this date, therefore, it was contrary to the Regulations that any species of salmon should be caught to be canned, cured, or otherwise prepared elsewhere than in the province, and any license, whether of a canneryman or fisherman, was liable to cancellation for violation of the provisions in this respect. Apparently, however, the Regulations were not strictly enforced, since in the report of the Fishery Commission of 1905-07 reference is made to evidence submitted of the export of salmon for canning purposes.

This Commission drafted a new code of Regulations in which, for reasons not stated in the report, only prohibition of fresh sockeye was provided for in the following clause:—

"40. (a) Salmon—No sockeye salmon shall be exported from the Province of British Columbia, except in a frozen, canned, salted, smoked or cured condition."

This new code was enacted by Order in Council in 1908, and all former Regulations were repealed. What the canners have been urging this year is, therefore, practically a return to the policy in force previous to 1908.

Until the last few years the only salmon of real importance in the industry in British Columbia was the sockeye. The spring salmon and cohoes had value, but the pinks and chums, if caught, were mostly thrown overboard. These are both excellent fish, and when taken in prime condition are not inferior to the other species in essential qualities, but the flesh, and particularly that of the chum salmon,

is not so red in the can as is that of the sockeye, the red spring or the coho, and the market for canned salmon has been built up largely on red fleshed fish. In 1910 only 92,975 cases of pinks and chums were put up in British Columbia, which was greater than the average pack of any previous period, while the packs since the war have been 404,814 cases in 1914, 449,932 cases in 1915, 520,845 cases in 1916, and 972,032 cases in 1917. The United States pack of these varieties in the period 1910-1916 has averaged 2,400,000 cases per year. The American cannery have been able to dispose of large quantities of canned pinks and chums in the southern districts of the United States, but the Canadian cannery had no considerable market, until the war conditions created a special demand in Europe. This new European outlet is open to the American cannery as well as to the Canadian, and, also owing largely to war conditions, the American cannery have found that their protected home market will more readily absorb large quantities of these two varieties of salmon than ever before. If we add to these developments the fact that the merits of pinks and chums as fresh or frozen fish are fast being realized, and that this trade is increasing enormously, we have the explanation of the sudden acuteness of competition which in the last three years has radically altered the whole face of the situation.

In this competition the American canner has certain advantages over the Canadian canner. In the first place he is allowed to catch fish in his own waters with traps and seines, very few of which are allowed in salmon fishing areas in British Columbia, and, at least in the seasons of good runs, trap fishing is very much cheaper than gill-net fishing, and seine fishing is also generally cheaper. In a majority of seasons the American canner probably gets the bulk of his fish at a less cost per fish than the Canadian canner. Then his capacity and his output are greater and, finally, he has a protected home market for 72 per cent. of his product. Under these conditions, if he wants a few million pounds of Canadian fish he is able to outbid the Canadian canner, for he can distribute the extra cost over his greater output without important effect, because of the lesser cost of the bulk of his supply, and he controls the largest single market in the world. In certain cases, also, American cannery make contracts, nearly always with Chinamen, for the management of the operation of canning on the basis of a guaranteed number of cases of fish, and if the local supply falls short of that number the canner can well afford to pay a higher price for the extra fish necessary, since he will have to pay a portion of the canning costs on them in any event.

The way in which the Canadian canner regards the situation is easily understood. He has to depend on the export market for almost his total output of pinks and chums, for a demand in Canada for these varieties in cans has not yet been created, the American canner is able to force him to pay a price which puts his costs higher than the average costs of his competitor, and the latter can place the Canadian-caught fish on the export market with this advantage in his favour.

In 1916 certain American cannery took from southern British Columbia waters 16,051,600 pounds of salmon, and the Canadian cannery submitted a calculation to show that there would have been a net gain to Canada of over half a million dollars if these fish had been canned in this country instead of being exported in a fresh condition; making due allowance for the amount paid the fishermen in excess of the amount the Canadian cannery had been prepared to pay.

The greater the number of competitors and the keener the competition, the higher tends to be the price per fish paid to the fisherman. On this general ground, and also because it is claimed that it is only in the last three or four years, or since American buyers have been active bidders, that he has been able to sell all the pinks and chums he could catch, the southern British Columbia fisherman opposes the prohibition of export. Apparently there is thus a divergence of interest between the cannery and the fishermen, and there are collateral issues, such as that over the use of boats and nets, which have led discussion beyond the fundamental points involved, and have rendered strict moderation of attitude not easy to maintain on

either side. It cannot be admitted, and indeed it is not seriously argued by anyone, that the real interests of Canadian fishermen and Canadian canners are separate and distinct. As a matter of fact they must, for the most part, coincide. The more or less irregular incursions of American buyers cannot give the Canadian fishermen anything comparable in value to the steady demands of a fairly conducted and successful Canadian industry.

It is clearly desirable that the freezing, curing and canning of Canadian fish should, as far as it is economically justifiable, be done in Canada, and prohibition of export for manufacturing purposes is a policy it may be found wise at some time to re-adopt. At the present moment we do not recommend it.

The circumstances to-day are exceptional, and what may be the permanent tendencies and needs of the situation in respect to the "fall fish," as the pinks and chums are commonly called, cannot with certainty be determined. The sudden expansion in the demand for these fish by both Canadian and American canners is ascribed to the greater need for foodstuffs in North America, and in order that more may be sent to our Allies in Europe. While the demand due to this especial need continues, the problem it creates cannot be dealt with on the principles that might be proper in normal times. Even if the case were clear that prohibition of export would be to the net advantage of Canada, the immediate policy would have to be decided on other grounds. But the case is not clear. The facts indicate that the Canadian canners, even taking into consideration the exceptional demand of the last two years, have not had a sufficient market for canned pinks and chums to utilize the available supply in Canadian waters and to be able to pay for these fish a price they should be worth. Even this season, at the time we visited the northern districts, which had not been touched by American buyers, the low opening prices offered the fishermen for pinks and chums may be taken as evidence that the demand was not yet on a satisfactory basis there. Perhaps the Fraser River and Southern Vancouver Island canneries might this year have handled, at a reasonable price, all the pinks and chums, not required for the fresh and frozen fish trade, which it was safe to allow to be caught in those districts, and these canneries may have been unfavourably affected by the international competition. Last year even in these southern districts, and particularly on Vancouver Island, the evidence indicated that the total catch could not have been satisfactorily handled. Having the northern districts free from direct international competition, the British Columbia cannery industry, as a whole, is in a position to proceed with the development of a market for canned pinks and chums, and cannot be fatally handicapped by any excesses of competition in the south. That there has been excessive competition at times, by which the interests of the public as consumers, as well as the interests of the competitors themselves, have suffered, would appear to be undeniable; but ordinary business common sense may be expected to bring about a certain amount of adjustment under such conditions, and there is special administrative machinery in both countries to check any temporary injustice to consumers.

The rapidly increasing requirements of the fresh and frozen fish trade are certain to have an important effect on the situation. In the preparing of Canadian-caught fish for this trade Canadian plants, situated close to the fishing areas, should have a commanding advantage over American plants at a distance, and the buyers for this trade will probably set the price for the canners. Icing or freezing is cheaper than canning, and to the extent to which there is an active market for fresh and frozen fish, the fresh fish buyer can outbid the canner. The particular form of competition experienced during the last three years may be a temporary phase of the development.

An entirely different phase of the problem is presented by the possible effect upon the supply of pinks and chums of the conditions at present prevailing. Whenever intense competition exists and high prices are offered for fish, there is a grave danger of transgression of the regulations and of overfishing. We have already pointed out that adequate scientific study has not yet been given to the pinks and chums to form a basis for satisfactory judgments, and no measures have been put into effect to main-

tain or increase the supply through hatcheries. Because these fish spawn near the sea, and do not go up the rivers until close to the spawning time, it is much easier to destroy the supply than it is in the case of other species. The methods of fishing, and the fact that the inspectors have not had at their command sufficient staff to effectively patrol the competitive areas, give ground for very grave concern as to the permanence of the supply. The fact that there is no control over fish buyers is another weakness in the situation. On this aspect of the problem, as soon as possible after our return from the Pacific coast, we addressed the following letter to the Minister of Marine and Fisheries:—

OTTAWA, September 18, 1917.

The Hon. J. D. HAZEN,
Minister of Marine and Fisheries,
Ottawa.

DEAR SIR,—Among the matters referred to your Special Pacific Fishery Commission was the following:—

“5. Whether the export in a fresh condition of other varieties of salmon than sockeye should be prohibited and if so, to what extent.”

The conditions under which this question has been raised are urgent and we desire to bring the matter to your attention without delay, leaving the full treatment of the subject for our general report.

We are not prepared, under existing conditions, to recommend that export be prohibited, but one serious danger to the public interest can be avoided if proper measures are taken to prevent overfishing for these other varieties of salmon, which owing to the kind of competition possible in the existing position of affairs, is otherwise almost certain to occur. High prices naturally prove an incentive to the fishermen to fish harder and longer, and attract the maximum number of fishermen to the water, and the rival buyers are certain to exercise a continuous pressure for greater and greater results upon the fishermen with whom they deal.

Under these conditions it is of the utmost importance that there should be such regulations as will give reasonable protection to the fish, so that the supply may not be depleted, and that there should be sufficient staff in the fisheries protection service to ensure the enforcement of these regulations.

Section 9 of the Special Fisheries Regulations for the Province of British Columbia, adopted by Order in Council P. C. 898 of the 30th March, 1917, reads as follows:—

“9. No one shall fish for or take coho, dog salmon, or humpback salmon from the 15th November in each year, to the 1st January following, both days inclusive; provided that the Chief Inspector of Fisheries may prohibit fishing for any of these kinds of salmon at an earlier date in any water area, should he find that such salmon in such area have so far advanced towards spawning as not to be in a satisfactory condition for food.”

Although the season for catching cohoes, pinks and chums closes on November 15, the season for catching spring salmon opens on the same date, and as the same size mesh is used for catching both varieties, practically no protection is afforded to the cohoes, pinks and chums. We understand that only very small quantities of spring salmon are caught between November 15 and January 1, but that considerable quantities of cohoes, pinks and chums are caught in the nets after November 15. With the abnormal demand for fall fish now existing, it is clear that this condition constitutes a serious danger.

We are of the opinion that November 15 is rather a late date for the beginning of the close season for the fall fish. We, therefore, recommend that all nets be taken out of the water not later than the 10th November, and that they remain out of the water until January 1 following.

The new power conferred upon the Chief Inspector to prohibit fishing at an earlier date than the beginning of the close season in any water area, according to the condition of the fish being caught, is very important in the interests of conservation, and we would urge that the Chief Inspector be furnished, with all the means necessary to exercise this power intelligently, consistently, and in all fishing areas.

We further recommend that the Chief Inspector be specially authorized to engage this season, and any subsequent season, such additional overseers and guardians as may be necessary to prevent illegal fishing. It is physically impossible for the present staff to cover adequately all the areas in which intensive fishing will be carried on this fall under the highly competitive conditions now prevailing. We propose to recommend in our general report that all fresh fish buyers be licensed so that this important function in the industry may be regularized and made subject to some supervision and control. If it were possible to inaugurate such a system at once it would lessen the danger of the organized carrying on of illegal practices.

Unless adequate administrative and reproductive measures are taken, it is not only easily possible but highly probable that the supplies of fall salmon will suffer serious depletion.

Yours respectfully,

W. SANFORD EVANS,
HENRY B. THOMSON,
F. T. JAMES."

To this letter the following reply was received from the Deputy Minister of the Department of Naval Service:—

The Minister has had under consideration your letter of the 18th ultimo, covering the findings of the Commission, with regard to the question of the prohibition of the export in a fresh condition of salmon other than sockeye.

I am pleased to inform you that he has approved of the findings of the Commission in the premises, and the necessary steps to amend the Fishery Regulations so as to lengthen the close time for fall salmon and make it effective, are being taken.

Yours truly,

G. J. DESBARATS.

QUESTION 6.

"The actual amount of money in cash originally and at present invested in each cannery and equipment; the annual business done and the expenses connected therewith, and the gross and net annual profits or losses sustained by each cannery in the said district since the boat rating became effective, such information to be obtained by the examination of witnesses under oath, or by an audit of the books or both, as may be found most desirable by the Commissioners."

Unless under a much more extended inquiry than was contemplated for this Commission, the details asked for in the above question could not be worked out. Indeed, the first part of the question, in the form put, is probably incapable of answer. Only three canneries operating at the time the boat rating became effective were in the hands of the original owners, many having changed hands several times. Most, if not all of the records of the earlier owners, it was found upon investigation, have been removed or destroyed. "The actual amount of money in cash originally invested in each cannery and equipment" is, therefore, not discoverable, and without this information the actual present investment in cash could not be determined. The present replaceable cash value could, of course, have been determined by

appraisal, but this was not provided for in the above instructions, and moreover, an expert physical appraisal of the thirty or forty plants, scattered along the northern coast, was impracticable on account of time.

It was decided, when securing such statements as would disclose annual profits or losses, to ask also for book values of canneries and equipment in 1911, or at the date of construction in the case of plants erected since that time, and for the yearly expenditures on capital account between 1911 and 1916 and the amounts properly chargeable to depreciation. Although we were authorized to proceed by an audit of the books of the companies, or by obtaining statements under oath, it was clear that in the time intimated to us for the conducting of the inquiry an audit of all the accounts of so large a number of canneries for six years was out of the question, for this work would have occupied many months, particularly as all the accounts of one company, and certain accounts of other companies, are made up and kept in England. After consultation, we instructed a leading firm of accountants to draw up a form of statement to cover the details necessary for the above purposes and submit these forms to the various companies.

On our return to Vancouver from the north, some three weeks later, it was reported to us that in not more than one or two cases was it possible for the companies to fill in from their books the form submitted. Each company keeps its accounts in a different way and no company has been in the habit of distributing the principal items according to individual canneries. The accounting, the financing, nearly all the buying and all the selling are done through the head office, in most cases in one of the cities in the south. After personal inquiry, and in accordance with the opinion of our accountants, it was evident that the returns asked for could not be completely or satisfactorily supplied by the companies.

We conceived that the object of the inquiry we were instructed to make under Question 6 was to place the department in a position to fairly estimate costs and profits in the cannery business in District No. 2. To meet conditions as we found them we drafted a simplified schedule which was filled in by the companies under affidavit. The differences in the methods of accounting, to which we have referred, made a uniform compiling of these returns in detail, impracticable, and some of the items were necessarily estimates, but estimates submitted under oath. Taking the district as a whole, and the period as a whole, we are satisfied that the figures obtained give a true idea of the financial aspects of the cannery business under conditions in the north in those years. Single years cannot as safely be compared because of the variations in the accounting methods. For example some companies reported, under the year in which the fish were packed, the total returns from the sale of that season's pack, even although a part of the pack had been carried over and sold in the following year, while other companies reported for each year the actual sales in that year and adjusted costs proportionately. Some years there is practically no carry-over, while in other years considerable quantities may not have been sold, but if the average of a series of years be taken these differences adjust themselves. Still greater difficulties were encountered in connection with statements for each cannery separately, year by year. Some had been purchased when bankrupt, and some in periods of inflation; the packs of the different canneries owned by one company cannot often be separately traced in the sales, the head office treating the packs of all its canneries in all districts as one stock, and much the same is true with some items of cost; and as between the canneries of different companies a comparison on figures from the books would be altogether misleading, because, for example, some companies have charged all renewals and new construction to working expenses, and some have not. We therefore have worked out and present only general total figures for the district as the only figures that can give a correct and useful representation of the situation, but we recommend that the Government should require in the future yearly returns on a simple but comprehensive form, drawn up by competent accountants, which will cover all points it is important for

the Government to know, and will bring about a more uniform system of book-keeping among the companies. General total figures for District No. 2 are shown on the attached statement.

Year.	No. of Canneries Reporting.	Investment in Canneries and Equipment (Book Values.)	Sales or Value of Pack.	Cost of Pack.	Gross Profit or Loss.	Head Office and Selling Expenses.	Net Profit or Loss before providing Depreciation.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1911.....	22	1,747,124 31	2,458,607 09	1,686,272 41	772,334 68	162,708 82	609,625 86
1912.....	27	2,785,220 59	3,669,622 49	2,531,904 87	1,137,717 62	257,760 73	879,956 89
1913.....	28	2,979,514 56	1,770,318 32	1,939,152 07	168,833 75	186,102 26	*354,936 01
1914.....	28	3,032,545 44	3,217,099 22	2,367,568 01	849,530 21	263,022 01	586,508 20
1915.....	29	3,033,867 46	4,164,834 65	2,864,252 81	1,300,581 84	301,595 01	998,986 83
1916.....	33	3,492,423 73	4,193,306 45	3,196,235 07	997,071 38	364,950 64	632,120 74
Total for six years.....		19,473,788 22	14,585,386 24	14,888,401 98	1,536,139 47	3,352,262 51	
Average per year.....	27	2,845,116 01	3,245,631 37	2,430,897 70	814,733 66	256,023 24	558,710 42
Total depreciation actually charged up in six years.....					343,844 00		
Average depreciation actually charged up in six years.....					57,307 33		
Total net profits as shown by the books therefore.....						3,008,418 51	
Average net profits as shown by the books therefore.....						501,403 09	

The money realized from sale of pack, \$19,473,788.22, therefore consists of 84.55 per cent costs and 15.45 per cent net profits.

Other percentages can be figured out at pleasure, but it should be borne in mind:—

1. That investment in canneries and equipment is only a part of the total investment required for conducting the business. Among other items, the money necessary to finance the yearly costs, averaging \$2,430,897.70, must be taken into account.
2. That as many companies charge wholly or partly to working expenses, the additions to plant and renewals as well as repairs, and provide little or no depreciation, gross profits are smaller than they would be under another system of accounting.
3. That the depreciation provided is absurdly small in itself, averaging only about 2.014 per cent per year, and that, even allowing for capital expenditures charged to working expenses, a much larger provision might require to be made, thus further reducing net profits as shown.

QUESTION 7.

"Such other points directly connected with the salmon fishing and canning industries in this district as in the opinion of the Commissioners will better enable them to reach proper conclusions on the aforesaid subjects."

Administration.—Your Commissioners are of opinion that the plan of organization of the administrative system should be reconsidered with a view to making it more effective in dealing with the important problems of the Pacific fisheries. The outline sketch of the present system, given in the introduction, does not reveal practical co-ordination among the various related services under the control of the Dominion and there is, moreover, the problem of the overlapping activities of the Dominion and the province. The system is characterized by extreme centralization at Ottawa, and yet only in the Minister of the Naval Service does it there find unity, there being no one

official in Ottawa, exclusively assigned to fishery problems, in whom centre all the administrative activities directly affecting the fisheries. On the Pacific Coast there is no connection at all between the different services and the powers of local officials are strictly limited. In the inspection service, for example, although the local inspectors may issue renewal licenses to licensees in good standing, apparently almost everything else must be referred to Ottawa for decision.

The fishing interests have made many representations in favour of more immediate access to executive authority. What is now known as the Pacific Committee of the Advisory Board does not meet the particular need felt. This Pacific Committee consists of the Deputy Minister of the Naval Service, chairman, the Commissioner of Fisheries, the General Superintendent of Fisheries, the Assistant Superintendent of Fisheries, the General Inspector of Pickled Fish, who are all officials of the Department at Ottawa, and the Chief Inspector for British Columbia and a representative of the provincial administration, the Deputy Commissioner of Fisheries; and there has recently been added one non-official member, a resident of the northern part of the province. In so far as this committee makes an occasion, once or twice a year, for certain higher officials to sit in conference, it is valuable, and the presence of the representative of the Provincial Department of Fisheries is of importance, but it is, in the main, only a method by which these officials work out their problems; it does not bring together all the higher officials of the services bearing on the fisheries; and it does not alter the general nature of the system nor create a local organ.

The Pacific fisheries have been producing about 40 per cent in value of the total fishery output of the Dominion, and are capable of great further development. The administrative system clearly should be so adjusted as to operate directly, comprehensively and effectively on the spot; for, as has already been emphasized, the fisheries are a great business and the constitutional position is such that the administrative system must determine, almost from day to day, the conditions under which the business can be operated. Mere changes in organization will not, in themselves, ensure constructive and efficient action and those responsible for results can best shape the instrument they will use. If a local organ is created it might centre in an individual who under the authority of the Minister could co-ordinate and direct the local operations of all the different services related to the fisheries, or in a commission, which might include in its membership one or more capable business men with local knowledge.

Larger expenditures will be required even under the most efficient organization, but any wise expenditures will be comparatively small outlays to bring about the increasing national returns, which this highly productive industry can be made to yield. Increased provision should be made for scientific investigation, and it would seem most desirable that the scientific experts should be brought into more direct relationship to the practical daily problems. The present inspection staff is undermanned even for the work now undertaken. Reasonable superannuation allowances should be provided for, so that the country may, without injustice, retain the services of men of experience.

The advantages of a general marine service, furnishing crews and officers for all vessels under the department, instead of the present separate recruiting, for short terms, by each different branch on the Pacific coast, appealed strongly to your Commissioners, who recognized the value of the discipline now in force and the possibility of creating a substantial nucleus for a national naval service and a training school for the Canadian merchant marine. The freeing of the fishery service from the embarrassment of the patronage system of appointments has already, we understand, been decided upon.

Spawning Areas and Propagation.—We recommend that a careful reconnaissance survey be made of the spawning areas in each water head in British Columbia, to place the department in possession of accurate information as to the extent and suitability of all spawning beds, as to obstructions in the streams and possible improvements in

the channels or at the spawning beds, with estimated costs, and as to the species of salmon frequenting each area.

Many witnesses of practical fishing experience held that improvements in the channels and in the natural spawning beds would show greater results in the propagation of the salmon than would artificial hatcheries. It is not necessary, however, to discuss the relative merits of natural and of artificial propagation, for in the opinion of your Commissioners both means of increasing the supply must be extended and improved. Everything depends upon the supply of salmon, and it is the peculiarity of Pacific salmon that they spawn but once and then die, so that the bringing to life and the safeguarding of the new generation each year is absolutely essential to the continuance of the supply. Propagation is one general problem; and the degree to which different methods should be employed should be determined by experience and by growing scientific knowledge. In our opinion the special interests of propagation should be specially organized as one branch of the local administration. Either one man, or a committee, with necessary experts, should be responsible, under the general officers of the administration, for propagation results, and should develop both natural spawning beds and hatcheries to the full extent necessary for the stabilizing of the supply of salmon at the economic maximum.

Very little attention has so far been given in British Columbia to the propagation of any species of salmon but sockeye, and almost no attention at all has been given to that of pinks, and chums, which are yet, owing to their habits, more likely to suffer depletion from overfishing than any other species. Provision should be made for the scientific study of these other species and adequate measures taken to maintain the supply.

Close Seasons.—The regulations provide that "no one shall fish for or take" sockeye salmon from October 1 to June 19, in the north, or to June 30 in the south; spring salmon from October 1 to November 15; and cohoes, pinks and chums from November 15 to January 1. The disparity in the length of the close seasons for the other species as compared with that for sockeye, raises the question whether the protection of the other species has up to this time received its due measure of consideration. Again, it is to be noted that there is no part of the year which is not an open season for one or more species of salmon, which means that nets of some kind may legally be in the water continuously throughout the year. Nets set for cohoes, pinks and chums between October 1 and November 15 will also catch any spring salmon then running; nets set for spring salmon between November 15 and January 1 will also catch cohoes, pinks and chums; and even although the nets used after October 1 have a larger mesh than sockeye nets, they are quite likely to hold and kill any late running sockeye. Salmon caught in the nets would not often live if thrown back into the water, and the probability is they will not be thrown back. The regulations as to close seasons have afforded no adequate protection for the salmon. In our interim report, in the letter to the Minister dated September 18 and quoted under question five, we recommended as an immediate measure to meet existing conditions, that the close season for cohoes, pinks and chums should begin not later than November 10, and that all salmon nets should be prohibited between that date and January 1, thus leaving a short general close season. The proper length of a general close season for the different districts and the periods during which each species can be deliberately fished for, should be determined on scientific evidence.

In addition to yearly close seasons the Regulations provide for weekly close times. In the north net fishing for salmon is prohibited from Saturday 6 a.m. to Sunday 6 p.m., and in the south from Friday midnight to Sunday 6 p.m., in the years of the "big runs", and from Saturday 6 a.m. to Monday 6 a.m. in the intervening years. The weekly close time can be made a much more effective instrument of conservation than the annual close seasons. The conditions of each stream as to supply of salmon, length of fishing area, etc., should determine the number of hours weekly during which the fish will be given unobstructed passage. If the time is not long enough to allow a sufficient number of salmon at their ordinary rate of travelling to pass com-

pletely through the area, then by fishing near the lower boundary just before the close time, and beginning again near the upper boundary at the termination of the close time, the purpose of the regulations can be largely nullified. As salmon run chiefly on the tides and as salmon fishermen work by the tides and not by the clock, the suggestion that the close time should begin at a certain stage of the tide nearest to a fixed hour, rather than at a fixed hour, is worthy of consideration.

Drag Seine Licenses.—As each drag seine license is issued for a specified area, and as each licensed area differs from every other in size and formation, in the physical characteristics of the river or creek it commands and in the numbers of salmon frequenting it, and their distribution according to species, we recommend that drag seine licenses be not issued under any general regulation setting uniform terms, but that each be considered separately according to its special features, and that such special terms be imposed in each case, in respect, among other things, to weekly and annual close seasons and to the distance from the mouth of the river or creek within which fishing cannot be carried on, as will fully meet the requirements of conservation in that particular case.

Changes in the Fishing Boundaries.—Having regard to the conservation of the fish, and in view of the tendency seaward of gill-net areas, the evidence indicated it would be desirable that changes should be made in the upper fishing boundaries on the Skeena, Rivers Inlet, Naas, Kimsquit and Bella Coola areas, as follows:—

Skeena river, by bringing down the upper boundary to Raspberry island.

Oxstahl (Skeena), by bringing down the upper boundary to Charcoal point.

Naas, by bringing down the upper boundary five miles from its present location.
Rivers Inlet, by bringing down the upper boundary five miles from its present location.

Kimsquit, by bringing down boundary six or seven miles to a point already upon by the cannery.

Bella Coola, by bringing down the boundary about a half mile from its present location.

We are of opinion that hydrographic surveys should be made of all areas in which nets are allowed, so that the conformation of the bottom and the depth of water may be considered in the location of boundaries. If, for example, nets are permitted where the waters are shallow, access to the spawning beds might be too effectively blocked.

Fish Traps.—In Alaskan and Puget Sound waters traps are very extensively used for the catching of salmon, and many representations were made by the cannery before the Commission that their use should be more generally permitted in Canadian waters. Your Commissioners saw a trap "lifted" near Ketchican, in Alaska, and another near Victoria, in British Columbia, and visited the trap-crowded waters of Puget Sound. The arguments in favour of traps are their economic efficiency and the fact that they can be employed at sufficient distances from the mouths of rivers and creeks to catch the fish in undiluted salt water and in good condition, which is of particular importance in the case of pinks and chums. The main ground of objection is that they must largely displace gill-net fishermen. Your Commissioners would not recommend any sudden, radical change in the policy of the administration with regard to traps, but think that particular cases should be considered on their merits and more especially those cases in which pinks and chums could be taken in salt water and in the best condition for the fresh and frozen fish trade.

Licenses for Fish Buyers.—We recommend that all fish buyers be licensed. It is desirable that the important part in the industry played by the fish buyers should be officially supervised. If fishermen and cannery must pay a fee and take out a license, which is subject to cancellation for infractions of the regulations, then those middlemen or agents who can now without restrictions buy fish from anyone who will sell,

should also be brought under control. This would appear proper even in the case of the responsible fish buyers who are regularly in the business, it is clearly desirable for the occasional buyers, whether they act for the local market or buy for the United States canners; and it will be less difficult to prevent illegal fishing, if the man who purchases fish caught above the boundaries, or during close seasons, and who often may directly tempt or incite to a violation of the regulations, can be held accountable. Irresponsible middlemen, and too many middlemen, are not in the best interests of any industry. Purchases made by a cannery at its plant might be covered by the cannery license, but, in our opinion, even cannery representatives who buy fish elsewhere than at the cannery should be licensed. It is very important that salmon, particularly, should not be taken from the water after they have reached a certain stage of the physical change which precedes spawning, and fish buyers, as well as canners, should be prohibited from handling such fish; and strict sanitary regulations should be in force with regard to the condition of all fish sold locally or exported.

Salmon for Use of Indians.—The right has been preserved to the Indians to take, for their own use, salmon above the commercial fishing boundaries to which all other fishermen are restricted. Salmon has always been the staple food of the Indians of the Pacific watershed, and of their dogs, and at the time of the runs a supply for the rest of the year is prepared by drying or smoking. It would appear that the Indians do not, as a rule, employ wasteful methods nor kill more salmon than they require, and that they are not now living as exclusively on salmon as in former years. The large number of fish they do take, however, are from among those that have escaped the nets of the licensed fishermen and have surmounted all the earlier difficulties of their extraordinary journey and are well advanced toward the condition of spawning. In that position and at that stage of development the salmon are worth far more as prospective parents than as a food product. Wherever it is practicable to arrange that the Indians can obtain a supply from waters nearer the sea, even at considerable money cost, the important interests of conservation will be well served, and this matter is recommended to the joint consideration of the Fisheries Department and the Department of Indian Affairs.

Natural Enemies of the Salmon.—The destruction of salmon, in various stages from the egg to the mature fish, by seals, ducks, eagles and trout is very great in the aggregate. Trout are very plentiful in the streams where the salmon spawn and consume large quantities of the eggs and the fry. The checking of this wastage is obviously in the interests of conservation. Witnesses before the Commission did not, however, suggest very definite methods of dealing with the problem. Restrictions on the taking of trout for the market might be removed from salmon streams and the fishing of sportsmen encouraged; and at some expenditure by way of bounties, or otherwise, it is believed methods could be found for reducing the numbers of seals.

Halibut.—Incidentally in the course of the investigation much evidence was submitted as to the depletion of the halibut on the Pacific coast and your Commissioners are strongly impressed with the seriousness of this matter and would urge that immediate provisions be made, on the best scientific advice, to afford the necessary protection to the halibut by close seasons, by closed areas, or by such other means as may be approved. As most halibut banks lie outside the territorial waters of Canada and of the United States, the question has international aspects and the United States authorities should be approached with a view to common action. In his report upon the halibut, published in the British Columbia Fisheries Report, 1915, Wm. F. Thompson, of Leland Stanford University, states as the result of an investigation of the returns of more than 800 fishing "trips":—

"The fact of the impoverishment of the banks is evident in every phase of the above summary, the shifting location of the most intense fishery, the increased time and effort required to obtain a yield, the lowering of the

average size of the fish on the banks, and the direct comparison of the productivity of depleted and undepleted banks. The rate at which this has taken place is definitely ascertained, and a careful examination of the possible ways of calculating it shows the correctness of that obtained through the yield per skate, while at the same time the evidence from every source is shown to concur in the result. It is therefore believed that the banks have depreciated in yield by weight between 70 and 80 per cent each decade since their active use was begun."

Government Aid to the Marketing of Fresh Fish.—In 1909 the Government, to encourage the marketing of fresh fish in Canada, undertook to pay, under certain conditions, one-third of the express charges on shipments in less than carload lots. This Government assistance was extended to shipments from the Pacific coast to points in the prairie provinces of halibut and salmon, fresh, frozen or mildly cured. As the result of incidental evidence submitted to the Commission, the following recommendations were made by letter to the Minister, dated September 18, 1917:—

"During our investigation at the Pacific coast many facts came under our observation in respect to the great waste of edible fish, and particularly of cod fish caught by halibut fishermen. At the present time no markets exist for these fish, and not only is the waste enormous but they are to be had in great abundance. If any special effort were made to take these fish the food supply would be materially increased.

"We are of the opinion that if it is possible to deliver these fish at a reasonable price to the consumer in Canada as far east as Winnipeg they should find a ready market and the result would be not only a way out of the present waste but would create a permanent industry and a cheap food.

"We found the fishermen and cold-storagemen both anxious and willing to catch and deliver these fish at the lowest possible price, in order to establish a market for them.

"The present rebate of one-third of the express charges on halibut and salmon we consider no longer necessary. Both these fish are in big demand and are at such a price that the rebate is lost sight of. We suggest that the rebate of one-third of the express charges be taken off halibut and salmon and that a rebate of at least two-thirds be applied on the different kinds of cod and flounders. Furthermore, we have had opinions from practical men that the rebate now allowed on fish, especially the smoked and cured varieties from the Atlantic coast should also be removed and applied to the kinds referred to. Our opinion is that the rebate of transportation charges on these Pacific coast cod and flounders should apply to less than carload lots, car lots or any portion of mixed cars, either freight or express, so as to provide the cheapest kind of transportation possible.

"We are convinced that to successfully find a market for these fish they will have to be put up at first in a frozen state shipped in car lots by freight and receive as much assistance in the way of rebate as it is possible to afford. As at the present time it is a matter of national importance to conserve some classes of food for the Allies, and as the Food Controller is making special efforts to encourage and facilitate the consumption of fish, we feel it would be a most opportune moment for your department to make the suggested change and will bring immediate and beneficial results."

To this letter the Deputy Minister of the Naval Service replied under date of October 11 as follows:—

"Adverting to the letter of your Commission of the 18th ultimo, in which it was recommended that the method of paying one-third of the express charges on less than carload lot shipments of fresh, frozen or mildly cured fish from

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the Pacific coast to points in the Prairie Provinces, should be discontinued and replaced by one whereby the Government would accept responsibility for two-thirds of the transportation charges, no matter by what means or in what quantities shipments might be made, on Pacific fish other than halibut or salmon, I am pleased to inform you that this recommendation was approved by the minister, and the authority of an Order in Council, dated 9th instant, has been obtained for the inauguration of the new arrangement on the 15th instant.

"It is hoped that as a consequence of the cheap transportation rates that will be available for the less known varieties of fish that are so abundant on the Pacific coast, the dealers will be able in the course of a comparatively short time to establish a large demand therefor in the western provinces."

W. SANFORD EVANS.
HENRY B. THOMSON.
F. T. JAMES.



